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'It's Important to Know In Time'

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The Newspaper of the Industry

Air Conditioning & REFRIGERATION NEWS

Production Tools for Victory

AN INTERNATIONAL INSTITUTION ★ SUBSCRIBERS ALL OVER THE WORLD ★

Technical Governmental

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5 Sept. Meetings On Industry War Drive Scheduled

Purpose of Refrigeration Program to Be Given At Industry Meetings

CHICAGO — The "Refrigeration War Drive" activity of the Victory Program of the Refrigeration and Air Conditioning Industry will open up next month in a series of meetings aimed at gaining the participation of all the elements of the industry in the "Drive."

Following a committee meeting last week in Chicago, John K. Knighton, director of the "Victory Program," announced a tentative schedule of "all-industry" meetings to explain the purposes and to procure enlistment in the "Refrigeration War Drive."

The tentative schedule of the meetings next month is as follows:

New York City	Sept. 14
Dayton	Sept. 16
Chicago	Sept. 18
St. Louis	Sept. 21
Los Angeles	Sept. 25

The "Refrigeration War Drive,"

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Service Men Asked To Enlist in Army

WASHINGTON, D. C.—An appeal for 100,000 skilled mechanics and technicians (including electric refrigeration and appliance service men) from 18 to 44, to serve in the Air Force, Signal Corps and Ordnance Department was issued by the War Department.

Although they would enlist as privates, the statement said that "in view of their skills, it is expected that most of them will shortly receive non-commissioned officer or technician ratings and rapid promotion may be expected."

It was explained that in order not to take the key men from essential war industries no one would be accepted unless he obtained clearance from his local draft board.

These technicians are vitally needed at once, it was said, for maintenance work until training schools begin turning out sufficiently skilled men to meet the need created by the expansion of the Army.

The War Department listed the following as eligible for the Air Corps, subject to an intelligence test

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Faster Production of Auto Parts Assured By WPB Amendment

DETROIT—The automotive parts industry, which has the kind of a WPB replacement parts order that the refrigeration industry ought to have, was further favored last week by an amendment which permits producers of such parts to schedule production of replacement parts without regard to purchase orders or contracts placed with them for other material on ratings lower than A-1-a.

This is how the official WPB release explains this latest plum to the automotive parts field:

"In a move to expedite production of replacement parts to keep the country's motorized equipment in good running order for the duration of the war, the War Production Board has ruled that producers may

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Dealers and Service Men Seek Relief

JOHN MORGAN of Charleston, West Virginia, one of the nation's leading electrical wholesalers, has been writing us recently about the inability of defense plant managers and workers to obtain electric refrigerators. (One of his letters appears on the editorial page of this issue.)

He contends—and rightly, we believe—that distributor stocks of household refrigerators of larger sizes should be unfrozen. So do a great many other people who write us.

Periodically for months rumors have cropped up that deluxe models and larger-size refrigerators would be unfrozen, inasmuch as they are not required in the defense housing program, or for army-navy officer's homes. But so far the rumors have not materialized.

The NEWS believes that no good purpose is being served by delaying the decision on this matter further. No valid objections have thus far been raised against it. If there are some, comprising sufficient reasons why these particular stocks should not be unfrozen, we are sure that distributors will continue to carry the burden without complaint. But, if the government decides not to let distributors sell these frozen stocks, the government should buy them.

Also in the mail are many complaints from harassed service men that—burdened though they be with urgent work—they are prevented from doing it. They ask the NEWS to appeal for them to local boards for:

(1) Gasoline

(2) Tires

(3) Temporary draft deferment

We are proud and glad to serve both the industry and the government in the new role which has somehow fallen to the lot of the NEWS—that of being a liaison agent between the industry and the many government bureaus—and we hope both service men and dealers will continue to write us whenever a situation needs correcting and they don't know whom to contact in the government about it. However, we hasten to point out that we have practically no influence with local boards. None of them subscribe to the NEWS; probably few of them ever heard of it.

It is true that the refrigeration service situation is growing desperate. H. T. McDermott, secretary of the Refrigeration Service Engineers Society, states his records show that *less than half* the refrigeration service men available at the first of the year are now on hand. Most of them have been drafted. (Mr. McDermott himself will don a uniform this month.)

This is putting a frightful strain on the remaining service men. In the Detroit area one must wait a week or more after calling for a service man before one can get to you. The situation is worse elsewhere. In the meantime, food spoils, babies get sick, some die.

For local rationing boards to add to the misery of this situation by refusing retreads or extra gasoline to the harassed, overworked refrigeration service men remaining is the straw that breaks the patient camel's back. We say: cut pleasure driving even more, if there aren't enough tires or gas to go around; but for America's sake, don't cut off refrigeration repairing.

About all the NEWS can do in this situation is to ask service men to report to us whenever local rationing or draft boards have heard their pleas and acted favorably. We have printed several items of that nature with regard to tires and temporary deferments for service men; and these items have been used by service men in other territories to substantiate their own pleas.

As to complaints about difficulties of compliance with WPB or OPA orders, that is a different story. These orders, when first drawn up, naturally cannot anticipate all the various angles and exceptions which crop up when they are actually administered. In the main, we have found, the WPB is ready and willing to issue amendments to their orders when valid cases for revision are brought to their attention. A recent case in point is order L-63 (exemption No. 6 helped alleviate a most difficult situation).

The NEWS can save the time of busy War Production Board members by broadcasting the interpretations of these orders to the industry (thus saving the writing of innumerable letters). It can also help bewildered industry members by analyzing their complaints and channeling them to the proper authorities. Officials of the War Production Board have been kind enough to acknowledge with some gratitude this useful liaison function.

Believe M-9-c Amendment Will Permit Copper Part Sale on A-10

Provision Expected To Remove Repair Parts From Restrictions

DETROIT — "Advices" to certain manufacturers of refrigeration replacement parts are to the effect that Amendment No. 5 to Copper Conservation Order M-9-c issued Aug. 7, remove restrictions on the use of copper and copper bearing alloy in repair and replacement parts, provided that not more than 2 lbs. of copper and copper bearing alloy are used in making the repair item.

What this means in practical terms to the industry is that if such advices hold water there will no longer be any withholding of valves, fittings, etc. by manufacturers who have adhered strictly to the letter of order M-9-c which says that "no manufacturer . . . may continue the manufacture after June 15 of such articles if such articles or parts contain Copper Products or Copper Base Alloy Products which were in the inventory of the manufacturer on or before Feb. 28, 1942, unless such article or parts are being manufactured to fill an order bearing a preference rating of A-1-k or higher."

One manufacturer is said to have

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Service Man Suggests Salvage Collection of Block Tin Coils

SALVAGING thousands of pounds of almost pure tin from discarded block tin coils is the suggestion of P. N. Ferguson, veteran commercial refrigeration service man from Pontiac, Mich.

Mr. Ferguson reports to the NEWS that he has seen hundreds of pounds of abandoned old block tin coils lying around in stores, restaurants, and beer parlors; and he assumes that the same situation holds true nationally.

In recent years, service men like Mr. Ferguson have been replacing the old block tin coils with more efficient new coils made from copper, aluminum, and steel, or with devices which replace coils altogether.

It is the suggestion of the NEWS that the industry organize a nationwide collection drive for both tin and copper scrap of this nature as a demonstration of its patriotism and eagerness to serve.

Production of Space Heaters Is Limited

WASHINGTON, D. C.—The War Production Board on Aug. 5 issued Limitation Order L-173, cutting off further production of domestic space heaters calling for the use of fuel oil or gas except to fill orders for the Army, Navy, Coast Guard, Maritime Commission, or War Shipping Administration.

Types of heaters covered by the order are those designed to heat only the space in which they are located and which are not equipped with distribution pipes. Included are circulating heaters, radiant heaters, direct fired gas unit heaters, and floor and wall furnaces.

The order permits the production of replacement parts so that units

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Sears Offers Cabinet Without Unit for Use With Ice

BIRMINGHAM, Ala. — Sears, Roebuck & Co. early in August in its Birmingham store advertised its Coldspot electric refrigerator but without the refrigerating unit. The slogan was "Ice It for the Duration and Electrify It After the War."

Along with the sale of the box, the company gives the guarantee that after the war it will furnish an electric unit at a reasonable price which will fit the unit. The refrigerator stripped of the electric unit is offered at $89.95.

Salesmen in East Are Denied Extra Gasoline

WASHINGTON, D. C. — Extra gasoline rations to salesmen have been denied by the Office of Price Administration because of the "increasingly grave gasoline petroleum transportation shortage in the East."

(Concluded on Page 16, Column 1)

Announcement

The staff of AIR CONDITIONING & REFRIGERATION NEWS is now devoting all its energies to compilation of important statistical data which will be published in the August 31 issue of the paper.

Because of the overwhelming volume of work involved in completing this special job, it has been decided to postpone until September publication of winning articles in the "How I Sold Refrigeration Equipment on Priority to a War Factory" contest.

Closing date of this contest has been set back to September 1. If you are a distributor, dealer, jobber, serviceman, contractor, or salesman and have not already entered this contest, get started now—there's still time.

New Bullet Process Requires Reduced Amount of Copper

NEW YORK CITY—Development of a process perfected by a Pittsburgh steel concern whereby bullet cups (not cartridge cases) for .30 to .50 caliber bullets henceforth will be made of materials consisting of 80% steel and 20% gilding metal has been reported adopted by the Army, but nothing official has yet been said by the War Production Board or any other Government agency.

At the present, gilding material, an alloy of 90% copper and 10% zinc, is used entirely.

It is pointed out that the amount of gilding material currently used for a single cup is, of course, insignificant, but when bullets are produced in the billions, the quantity of copper involved is tremendous.

In an article in "Product Engineering" Lieut. Col. J. H. Frye declares that the development of steel cartridge cases to replace brass cases will save 100,000,000 lbs. of copper this year and 591,000,000 lbs. in 1943.

Col. Frye says that "the steel cartridge cases developed in the United States are quite as satis-

(Concluded on Page 13, Column 3)

Steel Recovery Corp. Formed To Buy Frozen and Idle Stocks

WASHINGTON, D. C.—Organization of the Steel Recovery Corp. was announced Aug. 8 by the War Production Board. The new corporation, acting as agent of the Metals Reserve Co., will make arrangements for the purchase and sale to war contractors of idle, frozen, and excess stocks of iron and steel, as part of WPB's nation-wide program to direct all scarce materials into strategic production as rapidly as possible.

It will function in much the same manner as the Copper Recovery Corp., which is now in the process of channeling millions of pounds of copper into war use.

Headquarters of the Steel Recovery Corp. will be established in Pittsburgh.

WPB has already re-directed large quantities of iron and steel from idle inventories into war use. The extensive program now being initiated has been in the process of development for a number of weeks, and will greatly expand this activity. Exact figures are not immediately available, but coming surveys are expected to reveal the location of millions of tons of iron and steel rendered idle by industry's conversion from a peace-time basis to war production.

By the end of this month the first of 250,000 inventory report forms will be mailed to known holders of iron and steel. These will go to 37,000 owners of stainless steel. Similar programs covering other types will follow. Accompanying the forms will be a letter explaining the program and a list of prices at which the Government will purchase material which cannot be used in its existing form and must be remelted before taking its place in the war.

In cases of material useable "as is" by qualified war contractors, owners and potential buyers will be notified so that private sales may be arranged.

Every attempt will be made to find uses for idle material in its existing form, but where this cannot be accomplished it will be purchased by the Steel Recovery Corp. for use as scrap.

The Steel Recovery Corp. and WPB's Inventory and Requisitioning Branch and Iron and Steel Branch will work together in the coming program. The Inventory and Requisitioning Branch will be responsible for locating idle iron and steel for establishing prices at which it will be purchased by the Government, and for requisitioning when other attempts to secure material are unsuccessful.

The Iron and Steel Branch will direct allocation of the material to war plants, and the Steel Recovery Corp. will arrange for inspection, supply shipping directions, and handle payments.

Questions & Answers About Priorities Regulation No. 13

Data Given on Rules For Moving Excess Inventories

WASHINGTON, D. C.—A series of official questions and answers on Priorities Regulation No. 13, which order is designed to expedite the flow of idle and excess material into essential War production, has been issued by the WPB.

The questions and answers are particularly helpful in defining many of the terms used in the order.

Questions and answers are as follows:

Q. What is the purpose of Priorities Regulation No. 13?

A. The underlying purpose of Priorities Regulation No. 13 is to provide a faster, easier, and more direct means of moving idle, excess, and frozen inventories of certain critical materials into war production, and to encourage the holders of these and other materials to voluntarily sell them to specified classes of war users and others who need them.

In order to accomplish this, Priorities Regulation No. 13 provides uniform rules governing "Special Sales" of idle or excess material by persons not regularly engaged in the business of selling such materials.

Q. What determines sales that are covered by Priorities Regulation No. 13 and are, therefore, "special sales"?

A. There are three main tests to be applied:

(a) Does the seller regularly sell such items as part of his established business? If so, the sale is not a "Special Sale" and is not affected by Priorities Regulation No. 13.

(b) Is the item a tool, machine, or an assembled piece of equipment? If so, the sale is not covered by Priorities Regulation No. 13. For instance, sales of electric motors, stoves, boilers, and such assembled units are not covered.

(c) Is the item in the class of foodstuffs or finished consumers goods which are used in the form bought, without being made part of a further assembly or structure? If so, the sale is not covered by Priorities Regulation No. 13.

If the sale is excluded by any one of the tests mentioned above, the regulation does not apply and the sale remains covered by any other applicable orders.

Q. Is a "special sale" limited to what may be considered idle or excess stocks?

A. Although in most cases "Special Sales" will be out of idle or excess inventories, the definition of a "Special Sale" is not so limited.

Q. What are "war materials," as defined by Priorities Regulation No. 13?

A. "War Materials" are any materials consisting in whole or substantial part of one or more materials listed in Schedule "A," Priorities Regulation No. 13. For example: products containing copper and copper base alloys, nickel, tin, specified chemicals, pig bristles, steel and ferroalloys, rubber, etc.

Q. To whom can "special sales" of "war materials" be made?

A. "Special Sales" of war materials are permitted as follows:

(a) To certain government agencies, such as the War Department, Navy Department, Maritime Commission, Board of Economic Warfare, and corporations organized under the Reconstruction Finance Corporation Act.

(b) To buyers specifically authorized by WPB.

(c) By a producer to another producer engaged in the same business as the seller, if authorized by a WPB order expressly permitting such sales.

(d) In individual lots at an aggregate price of less than $100.

(e) To certain classes of buyers, as indicated Schedule "A" of Priorities Regulation No. 13, such as producers, reprocessors, wholesalers, and scrap dealers.

(f) If a sale is permitted under one or more classifications, it is permitted by the Regulation.

Q. How do you determine whether or not a "special sale" of a product containing "war material" is permitted by Schedule "A" of Priorities Regulation No. 13?

A. Schedule "A" is a list of critical materials which are of major importance to war production. It also sets forth the conditions under which a "Special Sale" of a war material is permitted to certain classes of buyers. Thus, in order to determine if a "Special Sale" of a specific war material is permitted by Schedule "A" the following steps are taken:

(a) Locate the name of the material (listed in alphabetical order) under one of the three groupings: metals, chemicals, miscellaneous.

(b) Find the symbol which appears opposite the material and in the column which describes the prospective buyer.

This symbol indicates the conditions under which the sale can be made. For example: the symbol "WOP" means "without preference rating"; "PRA-1-k" means that the holder may sell the particular war material, provided the prospective purchaser has a preference rating of A-1-k or higher. "NO" means that the sale is not permitted to that particular class of buyer without specific WPB authorization. "X" means "not applicable."

(c) If a sale is a "Special Sale," the terms on which it can be made are described in the Regulation. If a sale is not a "Special Sale" the Regulation does not affect it.

Q. How do you determine whether or not a "special sale" of a product containing a single "war material" is permitted by Schedule "A"?

A. If the product is not listed on the schedule as a specific alloy, compound, or mixture, the conditions governing the sale are the conditions governing all component "war materials" and the sale must be made in accordance with the most restrictive of such conditions as indicated in Schedule "A."

Q. Can "special sales" be made of materials not included in Schedule "A"?

A. Schedule "A" lists only the critical materials and shows the conditions under which these materials may be sold. "Special Sales" may also be made of materials not on Schedule "A" without restriction.

Q. What are the restrictions on the buyer in a "special sale" under Priorities Regulation No. 13?

A. The buyer remains bound by present restrictions and Regulations of WPB which control the amount of materials which he may receive or produce, and the uses he may make of these materials. He is also required to submit any reports and information in connection with purchases which are required by any order or other Regulation. With these exceptions, the buyer is authorized to acquire material through a "Special Sale" if the seller is authorized to sell.

Q. What are the restrictions on the seller in a "special sale" under Priorities Regulation No. 13?

A. No seller can make a "Special Sale" if he knows, or has reason to believe, that the purchaser would be violating any WPB order or Regulation.

The seller must maintain records concerning "Special Sales" authorized by Priorities Regulation No. 13. These records must be available for inspection by representatives of WPB.

Q. Do these same restrictions apply if the sale is not designated as a "special sale"?

A. Priorities Regulation No. 13 applies only to "Special Sales." Any sale which is not a "Special Sale" remains subject to all applicable Orders and Regulations.

Q. May a "special sale" be made in accordance with some other order or regulation if not permitted by Priorities Regulation No. 13?

A. If a "Special Sale" is not permitted by Priorities Regulation No. 13, it may not be made even though permitted under an order issued prior to July 7, 1942. The provisions of this Regulation control all "Special Sales" and supersede all orders and Regulations issued prior to Priorities Regulation No. 13.

Q. May a "special sale" be made if permitted by Priorities Regulation No. 13 and forbidden by another order or regulation?

A. Priorities Regulation No. 13 supersedes any Priorities Regulation or order issued prior to July 7, 1942. A "Special Sale" may be made if permitted by Priorities Regulation No. 13 without reference to any order or regulation issued prior to July 7, 1942.

Q. Does paragraph (c) (2) (i), which permits "special sales" to certain government departments and agencies, permit "special sales" to a prime contractor of such departments or agencies?

A. This paragraph does not permit a "Special Sale" to a prime contractor. A prime contractor is in the category of a producer and sales to him are governed by Schedule "A" and the other provisions relating to producers.

Q. Does Priorities Regulation No. 13 compel the sale of idle or excess stocks?

A. Priorities Regulation No. 13 is intended to encourage the sale of idle or excess stocks but does not compel their sale.

Q. May maintenance supplies be sold under Priorities Regulation No. 13?

A. Sales of raw and semi-finished materials from maintenance and supply stocks if such materials are not regularly sold by the seller in the course of his business—are "Special Sales" and thus governed by Priorities Regulation No. 13 and may be made only in accordance with the Regulation.

Q. Is an auction or foreclosure sale governed by Priorities Regulation No. 13?

A. An auction or foreclosure sale is governed by Priorities Regulation No. 13 to the extent that the sales made at auctions or foreclosures are "Special Sales" within the definition of Paragraph (b) (2) of the Regulation. A general auctioneer is not considered to be in the business of regularly selling any specific product.

Q. What effect has Priorities Regulation No. 13 on materials purchased with priorities assistance?

A. A "Special Sale" of materials which were purchased with priorities assistance can be made in accordance with Priorities Regulation No. 13 notwithstanding the provisions of Priorities Regulation No. 1 which prohibited the diversion of materials obtained with priorities assistance.

Q. Would a sale of materials acquired without benefit of priorities assistance be governed by Priorities Regulation No. 13?

A. Any "Special Sale" of any materials —irrespective of how the materials were originally acquired—come within the Regulation.

Q. Would a sale of materials acquired without benefit of priorities assistance be governed by Priorities Regulation No. 13?

A. Any "Special Sale" of any materials —irrespective of how the materials were originally acquired—come within the Regulation.

Q. Does Priorities Regulation No. 13 apply to the transfer of material from one department to another department of the same company?

A. A transfer of material from one department to another of the same company must be a sale as defined in paragraph (b) (1) of Priorities Regulation No. 13 in order to be a "Special Sale" and therefore is subject to the Regulation.

Q. What is the definition of the term "reprocessor" as used in Priorities regulation No. 13?

A. The function of a "reprocessor" will vary according to the material under consideration. However, as a general matter, by "reprocessor" is meant a person who acquires used material and who, by performing some operation with that material, converts it into a form in which it can be used as the equivalent of new material by another person. For instance, a person who converted used metal into secondary ingots or other shapes, or a person who converted used textiles into yarn which could be rewoven, or a person who removed contamination from a solvent, would all be "reprocessors."

Q. What is the definition of the term "producer" as used in Priorities Regulation No. 13?

A. A "producer" as used in Priorities Regulation No. 13 includes the ordinary manufacturer or fabricator and the various types of utilities mentioned in the Regulation. In general, a "producer" is considered as a person who buys materials either to use in his business or to convert into end products.

Q. Are repair parts for finished equipment covered by Priorities Regulation No. 13?

A. If a repair part is a unit assembly, it is to be considered as equipment and not covered by Priorities Regulation No. 13.

Q. How are plated items controlled by Priorities Regulation No. 13?

A. A "Special Sale" of plated items must be made in accordance with the provisions relative to both the material in the plating and the material in the body of the piece.

Q. What is the course of action if it is desired to make a "special sale" of material which is not permitted by Priorities Regulation No. 13?

A. Use Form PD-470 or state the circumstances by letter, giving a description of the material, the proposed disposition, the use to which it will be put, priorities rating, and other similar information. Make request to the Inventory and Requisitioning Branch, War Production Board, Washington, D. C. for authorization to make the proposed sale.

Whenever possible, however, the nearest field office of WPB should be contacted for help and advice in filling out Form PD-470.

SIX THINGS

IMAGINEERING

★ SO MUCH SO SOON ★

A MAN CAN DO

1 *MAKE OUR OWN JOB MORE PRODUCTIVE.* Every man jack of us can. And that's not preaching, either. It's the point of view we've adopted for the duration at Alcoa. The records we've broken so far, we tell ourselves, aren't nearly good enough. Nor shall we be satisfied with the new ones we set tomorrow.

MAKE OUR MACHINES MORE PRODUCTIVE. There is a way. We don't know the answer for your equipment. But we have found the answers for many of our own machines which we thought were already up to top output. The resulting step-up is getting planes into the air faster. And it is doing things to aluminum prices. Designers please note.

III *PRACTICE PREVENTIVE MAINTENANCE.* Keeping present equipment in top condition is easier than getting new. One of the ways our engineers are helping production everywhere is in counseling users of aluminum equipment on means of preventing unnecessary corrosion. The remedy is usually simple; the results priceless. Ask us.

FOUR *BUY WAR BONDS AND STAMPS.* It's patriotism with self-interest. You finance the war and you help to defeat inflation by refusing to spend for nonessentials. Moreover, you finance yourself to take advantage of all the revolutionary new products that are going to be ready to buy when the war is over. Buy today to keep your own wheels turning tomorrow.

FIVE *DREAM A DREAM EVERY DAY.* Remember that the kind of peace we all want depends on how many jobs we think up for the boys coming back. New jobs come out of new things to make. Let your imagination soar; engineer it down to earth; then file the plans away, ready for the day when. That's Imagineering! Selfish suggestion: think seriously in terms of Alcoa Aluminum.

Sixth and last *KEEP THE OLD CHIN UP.* Whatever the news, whatever the temptation, keep the chin up. The boys out there deserve it. Whether it's rationing, or restrictions, or whatever, let them watch us being soldiers about that.

Aluminum Company of America, 1975 Gulf Bldg., Pittsburgh, Pa.

ALCOA ALUMINUM

Refrigeration Processes Improve Quality In Shell and Plane Production

Improved Methods of Circulating and Chilling Water Used In 'Shock' Tests

Automatic System Needs Little Attention From Workers

LA CROSSE, Wis.—In the manufacture of certain projectiles, such as 155 mm. and 75 mm. shells, one of the final operations is known as a "water test" or "shock test," this consisting of alternately chilling and heating the projectiles to certain specified temperatures. With continuous production on a definite hourly volume, the process must be accurately timed to be in accord with the rest of the production schedule. The Trane Co., manufacturer of refrigeration and air conditioning equipment here, has engineered a cooling system for this type of ordnance production.

Information was collected by Trane field and factory engineers regarding the weight per projectile, the quantity of projectiles involved in a production run, the kind of metals used, etc. After a study of this data, tests were made to determine the actual time required to chill the projectiles to the desired temperature, as well as to heat them.

It was decided to develop the desired temperatures by immersing the projectiles in alternate baths of chilled and heated water. These tests revealed that the cooling and heating time consumed was much shorter when moving water was used rather than quiet or stagnant water.

Control Method

A 10-ton compressor was selected to chill the water for the chilling bath process. A Trane dry type water chiller supplies this chilled water to the plunging vat. A simple and effective method of automatic temperature control was secured by the use of remote bulb aquastats and motorized control valves. This method assures continuous and properly controlled operation without requiring any appreciable attention on the part of an attendant.

The water in the "hot" bath is heated by steam coils placed inside the vat. The steam is generated in an automatically fired steam boiler, and the water temperature in the vat is automatically controlled by the remote bulb aquastat and motorized steam throttling valve. The steam coils are kept drained by traps which deliver the condensate to a condensation pump which, in turn, pumps the condensate back into the steam boiler. The added make-up water is introduced into the boiler through an automatic boiler feeder.

The vats, containing the chilled and heated water in which the projectiles are immersed, are oblong and rectangular in design. They are placed end to end in a direct line. An overhead mono-rail with a trolley electric hoist lifts the projectiles in trays from one vat to the next and finally onto trucks for moving to the next operation.

On this particular job, the number of lifts per hour by the electric hoist determined the number of projectiles per lift, which also determined the size of the trays. The size of the trays and the time required to bring the projectiles to the desired temperatures governed the number of trays which could be accommodated in one vat at one time. This helped determine the length of the vats.

Velocity of Water Bath

Another factor in determining the length, width, and depth of these vats was the velocity at which the tempering water was to be moved. Tests showed the ideal velocity of the tempering water at one-half foot per second. At this rate of movement, the tempering time was reduced to one-fourth of the time required in stagnant water.

However, in this case it was not feasible to use the large capacity pump which would be required to develop this high rate of water movement. A compromise was worked out in the form of a Trane circulator, customarily used on warm water heating systems. The circulator afforded a simple and inexpensive method of circulating the water. The tempering time was reduced to about one-half of that required by the use of stagnant water.

The entire operation of this process is automatically controlled to maintain constant fixed conditions to meet the exacting requirements of army ordnance engineers. To facilitate this control, the vats are designed to include insulating material placed inside between the inner and outer steel sheets which form the sides, ends, bottoms, and tops of the vats.

Tops of these vats are made in sections which slide on rollers which are advantageous when loaded trays are removed from or placed in the vats. At other times the vats are closed, which reduces the effect of the surrounding atmosphere on the temperature of the tempering water. Inside the vats there are sectional roller conveyors which are pitched for gravity movement of the loaded trays from the entering end of the vats toward the removing end. Thus a line or conveyor system of operation is utilized.

Air Conditioning Ducts Are Used to Strengthen Windowless Building

CHICAGO—Air conditioning has joined hands with engineering principles developed for steel storage tanks to make possible a unique, windowless, restaurant and recreation building completed recently by the Chicago Bridge and Iron Co. for use of its employes. The structure has no interior columns, and employs unusually light materials in its construction.

Inside is a circular, central dining room 80 feet in diameter, roofed with a dome that rises to a maximum height of 25½ feet, and surrounded by a lean-to section 14 feet wide. This section contains kitchen, bar, mechanical equipment and storage space. Walls and roof are of 3/16 inch steel plate, and all exterior surfaces are lined with a mixture of asphalt and paper; also used is a spray coat of mineral wool for heat insulation and sound absorption.

Carrier refrigeration equipment provides cooling for the structure, with conditioned air being distributed through a ring-shaped duct of welded steel. This duct acts as a retainer for the main dome and serves to stiffen the entire structure.

Winston Elting, Chicago, was architect for the building. Consulting engineer was Samuel R. Lewis.

Evaporative Condensers Used to Exhaust Heat From Gasoline Engines

WICHITA FALLS, Texas—The Perkins-Timberlake Store here has pioneered one of the many less known applications of evaporative condensers in meeting the problem of disposal of waste heat.

A new heat disposal problem presented itself to the management of Perkins-Timberlake with the recent installation of gas engines to drive the Carrier refrigerating machine that furnishes cooling for the store's air conditioning system. The problem was to find an efficient means of cooling the jacket water. Two Carrier evaporative condensers provided the solution.

The 6-cylinder gas engines having a 4½-inch bore and a 5½-inch stroke, supply 50 hp. to each of the refrigerating machines. Jacket water for each gas engine is cooled by circulating it through the Carrier evaporative condenser. Air, even when at maximum wet bulb temperature blowing over the wetted coils of the evaporative condenser, cools the jacket water to 175°, a temperature well suited for the most efficient operation of the gasoline engines.

Age-Hardening of Wing Parts Is Retarded By Cold Containers

DETROIT—Retarding of the age-hardening of aluminum airplane wing parts through the use of refrigerated containers is considered the principal departure from conventional processing methods used by Murray Corp. of America here in the work it is doing for the War program.

The Murray Corp. is getting widespread recognition for its unique aircraft construction methods.

The refrigeration equipment is involved in the handling of 24SO, annealed aluminum alloy. The practice is one that is comparable to the now well-recognized aircraft manufacturing practice in the handling of rivets. It has been the practice to heat treat rivets and then take advantage of the time lapse before the rivets age-harden. This is done either by installing and setting the rivets within a short time after the heat treat, or by refrigerating them and making use of the fact that heat treated aluminum can be kept soft for a considerable period of time at low temperatures.

In the Murray Corp. manufacturing operations, after the sheets are cut to size, they are heat treated in a Lindberg electric oven, quantities of blanks being put through the oven together in a rack on a wheeled carrier. Immediately after heat treating, the aluminum is quenched in cold water, is rolled level and then put in a refrigerated cabinet and kept in this container until ready for use.

At normal room temperatures the aluminum will harden within two hours after the heat treat, and will become very hard within 24 hours. Low temperatures will retard this hardening for as long as four to five days if desired, but it is considered more practical to use the sheets as soon as possible after heat treating, preferably within 24 hours. Actually, several hours is the usual time.

The temperature range at which the aluminum metal is kept is from just under 32° F. down to just below 0° F.

The primary advantage of this process cycle is that the parts, after forming, are not subject to the distortion that comes with heat treating. Instead, the parts age-harden without warpage or wrinkling and maintain shape.

A secondary advantage, not looked for when the processing plan was originally developed, is that breakage, tearing and cracking during the stamping operation have been substantially decreased because the metal seems to accommodate itself to the shape of the die more readily when it is in the interim period between heat treat and final age-hardened condition.

This process eliminates the requirement for hand working or restriking of parts since there is no distortion after the parts age-harden.

The refrigeration containers are portable, so that the parts may be carried to the next stage in the production set-up.

Containers vary in size, depending upon the blanks they are to contain, but are approximately 8 x 4 x 4 feet high in most instances.

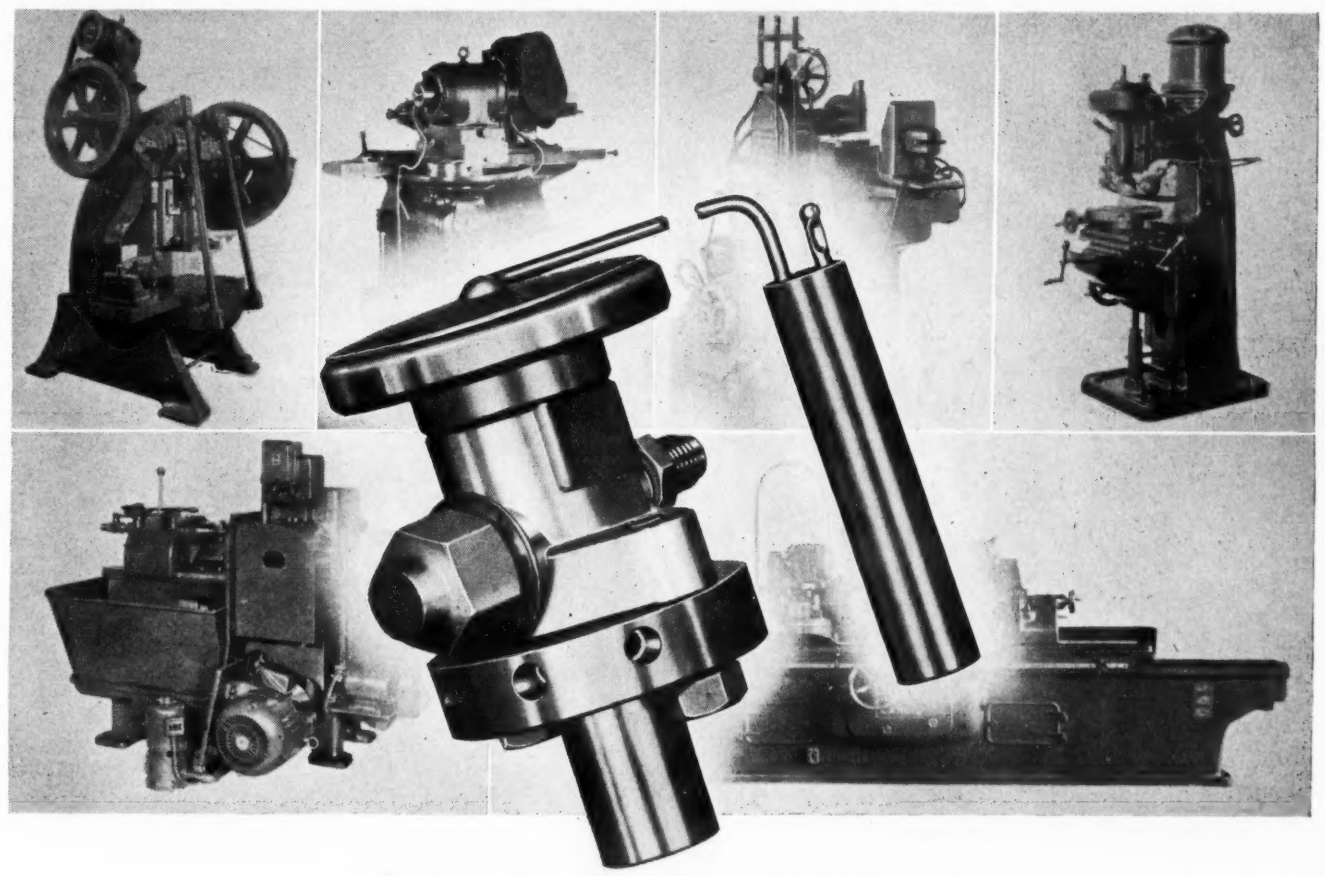
Some two dozen containers are now being used in Murray's present rate of operations.

Meisenhelder Is York War Work Director

YORK, Pa. — Ralph B. Meisenhelder, assistant to the president of York Ice Machinery Corp., has been appointed Director of War Contract Progress. His duties will be comprised of coordination and liaison responsibilities within the sales, engineering, manufacturing, administration, and war material divisions, reports S. E. Lauer, president.

Chillquick Executive Joins WPB

KENOSHA, Wis.—Ralph O. Martin, vice president of the Chillquick Corp. here has been assigned to a federal post in Washington with the War Production Board.



ALCO VALVES

Join the Ranks of Industry's Army of Tools for War Production

Again Alco Engineered Refrigerant Controls find important places in our Nation's production as an "auxiliary machine tool."

Thousands of plants engaged in War Production have found close temperature control essential to meet the exacting demands of the U. S. Army, Navy, and Air Corps. Air Conditioning of tool rooms, aircraft testing laboratories, material testing chambers, ordnance plants and other war production industries is doing much to increase the speed and efficiency of both men and machines.

For years, Alco engineering and design, quality materials, and precision construction have set standards for the entire industry. Today, the high efficiency and rugged dependability of Alco Refrigerant Controls is more important than ever, to meet the rigorous demands of all-out War Production. They have thoroughly proven their superiority and ability to improve the performance of any air conditioning or refrigeration system.

As a factor in proper temperature control they are as essential as many of the machine tools whose work is made faster and more efficient because of industrial air conditioning.

ALCO VALVE COMPANY

2620 Big Bend Blvd. — St. Louis, Mo.

ALCO Engineered Refrigerant Controls

THE STANDARD OF THE INDUSTRY

Some 'Reasons Why' Appliance Dealers Should 'Stick It Out'

Not Only a Question of Responsibilities To Users But Also of Maintaining Gains To the Post-War Era

Editor's Note: The following article, prepared from a speech made by Mr. Clark before the Sixteenth Western Radio and Appliance Trade Dinner of the Fall Market at San Francisco, in the opinion of the editors is the best compendium of advice for the beleaguered appliance dealer yet to appear. Some of the analyses and suggestions appearing herein are brand new; others you may have read or heard before. But the whole statement is so cogently put and so sound in its implications that it is urgently recommended to the attention of every appliance dealer and distributor. It is an article which should be kept, for review and ready reference.

By Bonnell W. Clark, Vice President in Charge of Sales, Westinghouse Electric & Mfg. Co.

THERE is one stanza from the ancient Persian tentmaker Omar Khayyam, which seems almost to epitomize the situation in which the world finds itself, and I'll use it as a sort of text:

"Ah, love, could you and I with Him conspire
To grasp this sorry scheme of things entire,
Would we not shatter it to bits, and then
Remold it nearer to the heart's desire?"

It has taken us three years to grasp the sorry scheme, which was born largely in our own complacent assurance and in Great Britain's that the First World War and the treaty that followed it had settled things. We came home to isolate ourselves and enjoy our own abundance, sure that the whole tired world would do likewise.

It took England 20 years to be convinced that the job had to be done again. So far as we are concerned, a comparative handful believed we were really going in, until Dec. 7, 1941. The "arsenal of Democracy" was all we had to be.

But now we know that this sorry scheme of things must be shattered to bits and that it must be rebuilt nearer to the heart's desire. We are getting ready for the shattering with the most amazing speed—the present apparent inaction to the contrary notwithstanding. Already, we have raised an army double that of World War I, and much of it is trained and strategically located.

This country's factories, their managements, and the men who man them, have produced an industrial miracle, and this under a terrific maze of reports, statistics, cost negotiations, audits, material shortages, new engineering, tooling, and factory rearrangement.

Patience under the present stress of enemy success is difficult, but the miracle is there and the shattering possibilities will surprise us when they are organized.

As early as January, 1941, we manufacturers were busy designing substitutes for critical materials in an effort to keep out of the way of the war program, and still keep our business moving, our ultimate users satisfied, our dealers and distributors in business, and to provide for continued expansion of utility home service.

After that time, the scramble became daily intensified by threats of curtailment, the need to obtain defense business to keep our plants open and our people employed; and the need to make plans for carrying on through the emergency.

With the war actually upon us came a quick impetus to curtailment until, as of today, appliance manufacture is actually stopped and our effort has been almost entirely turned to the war.

The manufacture of electrical appliances is finished for the duration and further—until plants can be put back in shape to produce them, a tremendous job in itself.

There are, in manufacturers' and distributors' hands, 575,000 electric refrigerators, frozen and under government control. An order is now out to provide rationing of these boxes by WPB for various government agencies.

Approximately 65,000 ranges are in these stocks—the lower priced ones are frozen for government agencies, the higher priced ones available to the public on certificate of necessity.

Of other appliances, there are virtually none in the hands of manufacturers, and there is no accurate estimate of other stocks, but it seems fair to presume that there are enough small appliances in the hands of distributors, dealers, and utility companies to supply reasonable demands during the balance of 1942.

Thus, barring the tag end of the small appliance business, we are all facing the fact that we're out of business insofar as the sale of electrical appliances is concerned.

But this is not the end. There is still a future. We do not fight only to make war. We fight to make peace and, let us pray, to keep peace.

As Cordell Hull said in a great speech of July 23:

"Liberty is truly won only when it is guarded by the same watchfulness, the same courage, the same willingness to fight for it, which first secured it."

When the victory is won there will come to us an even greater responsibility than that of making war. We must then survey the pieces and remold them nearer to the heart's desire.

5 Guide Posts

I am not a post-war economic planner. God forbid. But there are some things to guide us that seem to me so self-evident that I want to present them before talking about our own business.

First: While a period of readjustment to peace time conditions must take place, it should be no more difficult than our recent adjustment to war time conditions.

Second: The people of a war-torn world, especially of the United States, are not going to give in to such a depression as we could visualize. They are fighting for freedom, security, and the good things of life, and they are going to have them.

Third: To the extent that industry is far-seeking, courageous, and able, there should be a return to free enterprise. But we face a continuance of government control if free enterprise fails to meet the needs.

Fourth: The pent up demand for the goods of peace will be unprecedented, and the means of their procurement stupendous. The rich may be gone, but there will be a HORDE OF "NEW RICH" clamoring for our goods.

Fifth: The victorious nations will police the world, and will help to rebuild it for the attainment of a reasonable world wide standard of living and of security. This in itself will produce heavy employment.

This, then, is the challenge, the responsibility, the opportunity.

Now, I want to look over the prospects of our business, the electrical industry, especially as it deals in home appliances. It is our niche in the peace time economy, and to us it bulks large.

The vast prospect of opportunity for the future will depend to a large extent upon what we do today, tomorrow, and the next day.

216 Million Appliances in Use

Today there are, in use by consumers, 216 million electrical appliances. This is a measure of responsibility laid upon the whole electrical industry if our manufacturers, distributors, and dealers expect to do business again, and if the utilities would preserve their present revenue and would garner the future home load which they must have.

Hundreds of millions of dollars have been spent in promotion of the idea of electrical living. Thousands of people have made the promotion of that idea their life work. The result has been astounding. It is represented by those 216 million appliances that today are making life simpler and happier for millions of our people.

The standard of electrical living is high. It can be higher, but we of the electrical industry must not let it drop now. It would cost too much to build it back.

We must keep these appliances at work; first, to keep faith with the people who bought them; second, to keep alive the ideal of electrical living.

People can forget. If you think back to the long struggle of selling just the idea of mechanical refrigeration, you will get some measure of what it will cost to resell an ice user who has gone back to ice because her electric refrigerator has gone back on her; of the vacuum cleaner idea to the woman forced back to carpetsweepers and brooms.

Again: **We must keep these appliances at work!**

It to is the dealer particularly that I want to speak tonight. I hope every dealer here will remain definitely identified with the appliance business. I want to show you why he should do this and suggest ways by which this may be done.

First, let's see why you should want to continue to be a most important factor in the appliance business.

The reason is to be found in what the future holds for this industry when peace is again restored to the world.

Increased Industrialization

Along with the development of manufacturing here on the Coast, has come the necessary man-power required to operate these plants and man the machines. The West today has experienced a greater increase in industrial manpower than any other section of the nation.

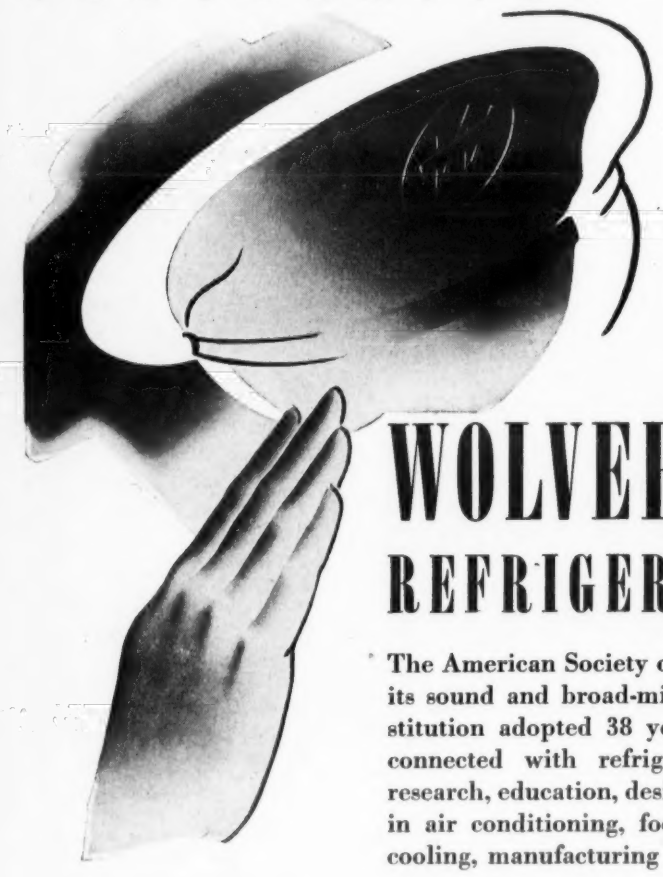
Much of this newly acquired industrial population will remain here in the West, and for the appliance

(Concluded on Page 5, Column 1)

Guides Dealers

B. W. CLARK

C O O P E R A T I O N W I N S T H E W A R



WOLVERINE SALUTES
REFRIGERATING ENGINEERS

The American Society of Refrigerating Engineers has well lived up to its sound and broad-minded principles so well expressed in its Constitution adopted 38 years ago: "To promote the arts and sciences connected with refrigerating engineering, including refrigeration research, education, design, manufacture, construction and application, in air conditioning, food preservation, industrial processing, liquid cooling, manufacturing and similar fields."

The codes and standards of the A. S. R. E. have played a prominent part in the advancement of refrigeration and in the industry's contributions to our modern civilization, both domestic and commercial.

No technical society has more faithfully fulfilled its function of unselfishly disseminating knowledge and putting the advances of the laboratory into actual practice.

And now, a most timely and patriotic movement is the Refrigeration Victory Program, a voluntary effort by the industry to conserve materials, power and man power.

That we at Wolverine have for so long been privileged to cooperate with the A. S. R. E. and with the refrigeration industry as a whole, is a source of deep gratification to us.

In supplying refrigeration tube of highest quality, we have always done our best to serve the industry well. We are doing our best today . . . and when the war ends, Wolverine will be in an even stronger position to supply refrigeration tube of high, uniform, controlled quality—controlled from raw material to finished product.

DR. WILLIAM R. HAINSWORTH
Vice-President in Charge of Engineering, Servel, Inc., and President of the American Society of Refrigerating Engineers.

WOLVERINE TUBE DIVISION
OF CALUMET AND HECLA CONSOLIDATED COPPER COMPANY
Seamless COPPER • BRASS • ALUMINUM
1413 CENTRAL AVENUE • DETROIT, MICHIGAN

LA CROSSE NOVELTY BOX MFG. COMPANY'S PRODUCTION

"MARCHES ON"

While no longer able to manufacture our nationally recognized line of beer dispensing equipment, our factory is busily engaged in doing its part in War Production.

We are also "Marching On" in the development of our products assuring our many customers of the latest and highest type of dispensing equipment after the war.

WHEN VICTORY HAS BEEN WON, WE WILL AGAIN RESUME LEADERSHIP IN THE MANUFACTURING OF BEER DISPENSING EQUIPMENT.

LA CROSSE NOVELTY BOX MFG. COMPANY
LA CROSSE, WISCONSIN

Clark Tells Why Dealers Must Stay in Business, Gives Some Ideas for Operating

(Concluded from Page 4, Column 5)

business that will mean more homes to serve, with a far greater potential volume than ever before.

A third great factor that points to a peace-time market here on the Coast that far exceeds our present horizons is the additional electrical power that will be released for home consumption.

The West has long enjoyed tremendous quantities of electrical power at low rates for home use. Over and above those quantities will be the huge blocks of energy just developed in the past two years, now devoted exclusively to war use.

I can't tell you just how many kilowatts this represents—such information might be of aid to the enemy. But I can tell you that when this electrical energy is released to the home after the war, that many hundreds of thousands of refrigerators, ranges, water heaters, and other electrical appliances will have to be sold by you dealers. There is a tremendous selling job cut out for someone.

There, in this picture of the post-war Western market for appliances, is the reason why you dealers should strive to hold your place in the appliance merchandising structure.

But how are you going to get along today when there are no more appliances to sell?

That question might just as well be asked of the manufacturer who no longer makes appliances, or of the utility that is finding it increasingly difficult to serve them under war conditions.

Keep Eye on Future

The answer must be—at least for the present—a combination of hard-headed day-by-day realism and a confident, weather-eye attitude toward the future.

The first answer lies in that so often abused adjunct of the appliance service and repair. Up to date most dealers have felt skeptical about the possibilities of service. But consider these facts.

According to the best estimates, as I have said, there are some 216 million appliances in use in the United States. There is a handsome share of these appliances now in use here in the West; at least 30,000,000. Remember, a certain percentage of these appliances are going to break down, and they must be repaired. You sold these appliances, and your customers will expect you to fix them or at least help them in finding a reputable service agency.

If you don't, they will be inclined to remember that you let them down when they were dependent on you for help. That won't help your post-war business possibilities with them.

Appliance dealers should retain their service men, or replace those lost to the armed services or to war industry. Service represents not only an opportunity for profit, but an investment in the appliance business of tomorrow. You will have to give just as much serious thought and care to that department as you have in the past to your appliance sales department. If you do, many of you can maintain your service department on a profitable basis, and can build a great asset of customer acquaintances and goodwill for the future.

Educate Public

Another most important way in which you can individually maintain your place in the appliance picture of tomorrow is to shoulder your part of the job of educating the public. Before the war you employed demonstrators to educate customers to the advantages of new appliances. Today that educational job is vital but in a new and different way. The public must be shown and told how to make their appliances last—how to care for and use them.

Naturally you will not hire demonstrators to do that job now, but your manufacturer, distributor, and utility have a wealth of material which you can use at very little cost to yourself.

These things you can individually do now, to fulfill your obligations and to further entrench yourself in the future of this business.

Fortunately you don't have to stand alone in this effort.

This business that we are now just beginning to appreciate has always enjoyed a wonderful sense of unity, a willingness on the part of all of us individually, to play a part in a great piece of teamwork.

Do you rember those early days of the refrigerator business, when we all played on the team, each doing our share and our part in a unified industry activity that made that business the stand-out in twentieth century merchandising?

Remember others, equally successful industry activities, that swept this nation far into the lead in the use of modern labor-saving home appliances?

It is my belief that with continued unity and with that same sense of teamplay, we can face the lean and tough days of today with a sense of protection and progress.

Already your utility companies and manufacturers are in the field with practical programs for service and repair of appliances now in use. Such programs do the promotional and advertising job for you, directing service customers to your store.

Most appliance manufacturers have, with government approval, built up large stocks of repair parts—estimated to care for the demands of the next two years. Manufacturers, too, have organized service schools throughout the country. In this most vital phase you find the utilities and manufacturers united in assisting dealers to maintain goodwill and continued friendship of their customer.

Right here in northern California you have a service program successfully under way.

You can identify yourselves with these industry wide activities in a way that will produce surprising results for today and for tomorrow.

Another important contribution that both manufacturer and utility are making to the War effort on the home front is in the field of Nutritional Education work.

Certainly we all recognize the need for keeping well. With one-third of the doctors now with our armed forces, it is dangerous to neglect health. The threat of coming shortages in certain foods, such as sugar, fats, and the like, are making all of us conscious of the need for information.

Efforts in this direction are coming from many sources. But it is the logical function of our industry to step in and with its trained personnel, perform this most vital service for the American home.

And here again our industry asks that you unite and associate yourself wholeheartedly with this effort. Your reward will be a continued place of confidence in the housewife's mind when this war is over.

Most of the utilities and many companies such as my own are now deep in this work of nutrition education. With us are associated the American Red Cross, local civilian defense, and many other public organizations.

Let me sum up the factors I have already touched upon:

In 1940 we hit a high of 3 million refrigerators manufactured and sold. About 1,500,000 of these were for replacement. If to this, as an annual replacement figure for the future, we add some 4 million extra, ready for replacement at the end of the war because they can't be obtained during the war, what is the answer in volume? Now think of all the rest, from flatirons up.

Now consider these:

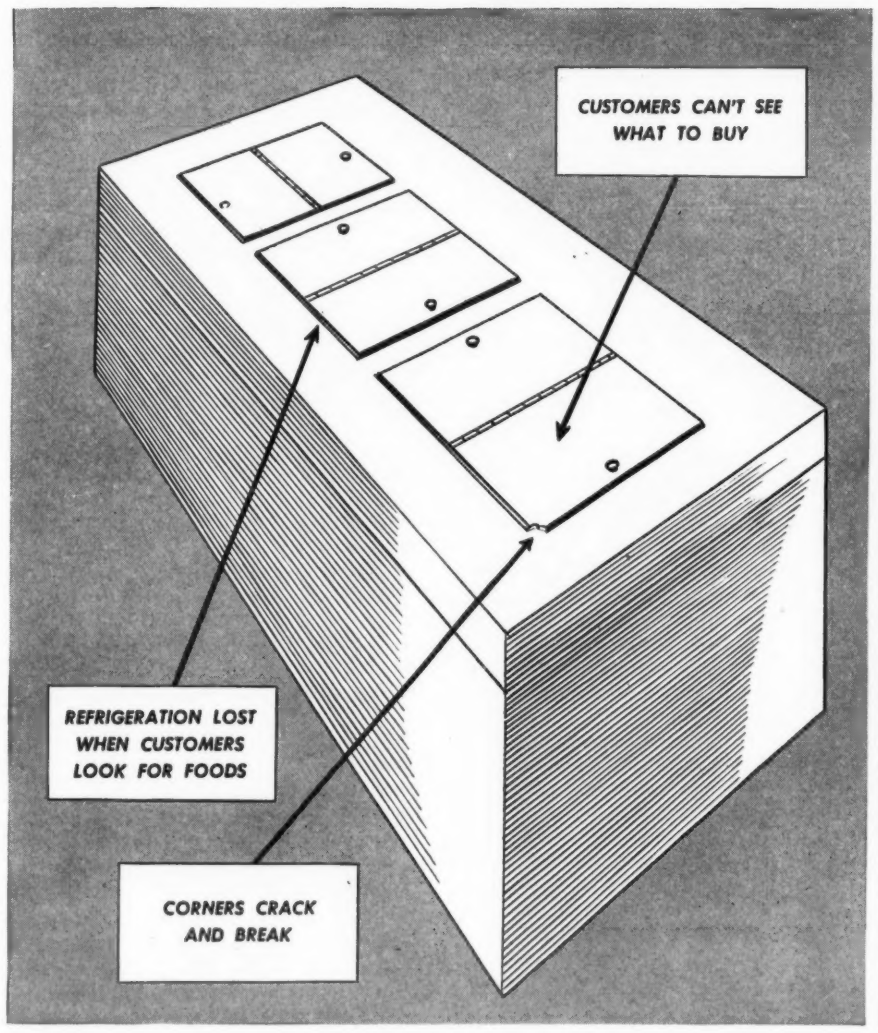
1) The horde of "new rich" and the new standard of living they will demand,

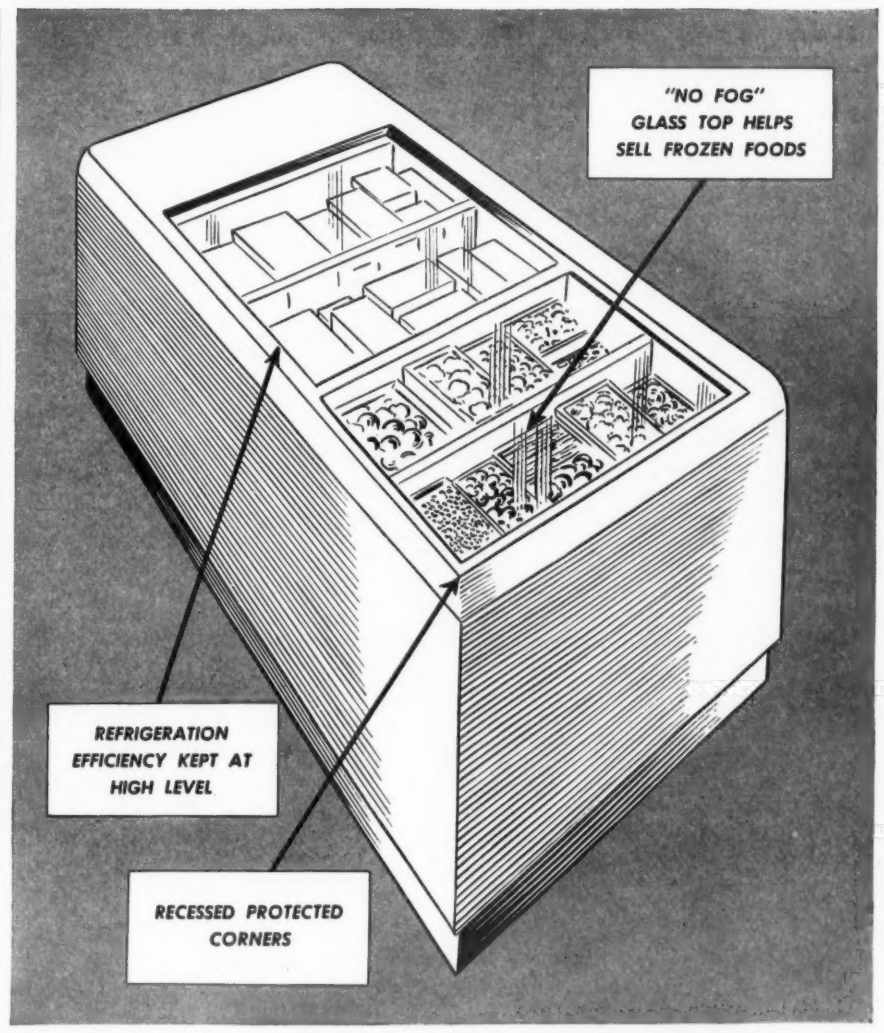
2) The vast supply of power that will be unleashed—and at rates designed to keep generating plants loaded.

3) The absolute need we will all have, in every line of business, to organize the peace quickly and effectively, that another scourge of uemployment shall not come upon us.

4) Remember, too, that we are not forgetting these things in the manufacturing plants. We are keeping on with what advertising and promotion can properly be done. We are keeping engineers busy with research and design to the end that new convenience, new efficiency, new design, and added usage may be incorporated in the product you will have to sell.

ELIMINATE "BLIND TOP" SALES HAZARDS WITH *Thermopane*



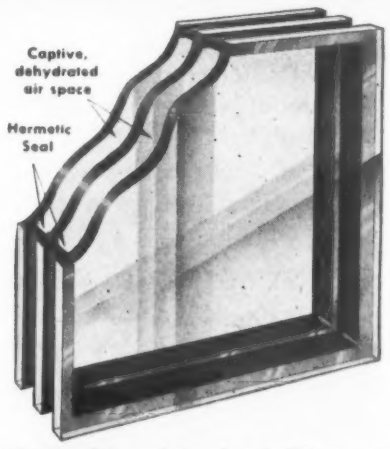


Replace Old-Fashioned Case Tops for Better Display, Better Selling

"Blind Top" cases possess sales hazards which definitely should be eliminated now. Thermopane units, in stock sizes, can now be obtained for many "Blind Top" cases now in use.

Thermopane eliminates "fogging up," because the captive air between the hermetically-sealed panes is dry—*and stays dry!* No dirt or dust can seep in, reducing service problems to a minimum. Replacement units are easily installed in a short time.

Customers are attracted to a Thermopane-equipped case . . . can see what they want to buy. Why not have your outmoded "Blind Top" cases equipped with modern, sales-making Thermopane? Write Libbey·Owens·Ford Glass Company, 1387-A Nicholas Bldg., Toledo, Ohio.



An Air-Conditioned Sandwich. Thermopane is a glass unit consisting of two, three or more panes of glass, separated by a ¼-inch or ½-inch of captive, dehydrated air, and sealed around the edges by an air-tight metal seal.

LIBBEY·OWENS·FORD *Thermopane*

"Better Seeing Means Better Selling"

GET COMPLETE INFORMATION ON REPLACEMENT WITH THERMOPANE

Stock sizes are available or can be made to fit most frozen food and refrigerated display cases. Write us for replacement information on your particular case.

A Control Hookup To Obtain Flexible Machine Capacity

Albert Kahn Specifications For 2-Machine Job Explained

By A. L. Munson, Refrigeration Engineer, Detroit

Some months ago AIR CONDITIONING & REFRIGERATION NEWS published an article by the writer about a certain refrigeration control arrangement specified by the firm of Albert Kahn, Inc., Detroit architects who have drawn the plans for many War plants. This system is used in cafeteria and plant kitchen refrigeration systems.

Since these specifications may have puzzled some engineers, dealers, and installation contractors when they have been or are preparing quotations under these specifications, the writer will interpret the elements of this arrangement, which he developed. The method is one of obtaining flexible machine capacity using two machines and connecting them so that one of the machines handles the normal load, and the other machine "floats" on and off the line as required by severe or peak load conditions.

Many of us have recognized the problems encountered through load variations, and especially seasonal effects on load conditions. The architect has recognized these problems and has incorporated this control system as a means of overcoming some of the difficulties by providing variable machine capacity, automatically.

His specifications may read something like this:

"Provide two compressors complete with water cooled condensers . . . etc. . . . Locate compressors in machine room and run refrigerant mains to all refrigerators specified for, System 'A.'

"The compressors shall be mounted on separate bases, and powered by two individual motors. The compressors may have a common condenser and receiver, but must be so cross-connected and valved that either or both compressors may be used, as desired, or as required by the load—or they may be two separately powered units with separate condensers with the suction and liquid lines cross-connected and valved so that either or both units may be used on the whole system. Provide ample oil equalization through cross-connecting of crankcase, etc.

"The units shall be automatically controlled so that if one compressor cannot maintain the desired refrigeration, the second compressor will **automatically** cut in until the load can be carried by one compressor."

Here the architect means **automatically.** He will not accept time clocks, etc., either.

"Provide a five minute (oil or pneumatic) time delay relay for system 'A,' so that while one machine handles the main load, the second machine can 'float' in and out of operation as demanded by the load, and as determined by suction pressure switches operating through this relay, as noted elsewhere in these specifications under 'Starters.'"

Even with a time delay relay definitely called for, one contractor submitted a time clock arrangement, and another proposed using only the standard pressure switches normally furnished with commercial compressors. The architect's office will be insistent about this control arrangement and has been known to print (we are advised) a blueprint of the drawing which is published on this page, right in their specifications in order to avoid any further confusion as to what they are asking for. We are, therefore, giving you a preview of this wiring diagram so that you will recognize it and know what is called for, when you see it printed or referred to in specifications.

"Starters—provide an Allen Bradley or Square 'D,' etc., five minute Time Delay Relay, similar to Allen Bradley Series 8-11, Form X29-863CD with mounting Z-3126, having normally open contacts."

This may be either oil dash-pot type or pneumatic type of delaying relay and the time may be three minutes or even a little less, since the pressure control settings can be shifted slightly to compensate, thus furnishing the desired operating arrangement. See the diagram and explanation for further clarification of this operation.

TIME DELAY RELAY

"The 3-hp. unit in system 'A' will be the main machine (machine No. 1) and the 2-hp. machine will be the secondary machine (machine No. 2). The Time Delay Relay shall be wired in series with the holding coil in the 3-hp. starter, or direct to motor leads on the 3-hp. motor.

"The purpose of this relay is to provide flexibility of machine capacity and operation which will compensate for load fluctuations due to seasonal or other causes. Pressure control setting for the machines in system 'A' shall be approximately 34 lbs. cut-in for the 3 hp. and 20 lbs. for the 2 hp. The relay becomes energized when the main machine starts and will withhold starting current from the secondary machine for appromiately five minutes. If the load is too heavy for main machine to pull suction pressure down passed the 20 lb. setting, the secondary machine will be energized and will start, so it can assist with the load through the balance of the cycle.

"Pressure control of the secondary unit shall be of type that makes contact at setting, but breaks contact above or below setting point —unless secondary machine has started, as previously described in which case contact must be maintained until main unit stops and thereby breaks time delay relay circuit. A relay must be used in connection with the secondary unit's pressure control to accomplish this purpose. Submit wiring diagram for approval."

The exact meaning of this specification may be a little obscure until you have studied the wiring diagram. Notice that unless the main unit is in operation, the secondary unit cannot operate. Notice also that if the main unit is able to pull the suction pressure down below the 20 lb. setting referred to, before the delaying relay has released electric energy to the other machine, the secondary machine cannot start, since the pressure control will have opened its contacts again.

This pressure control on the secondary unit may be a standard Penn visual type, close-differential control, since with a close differential, the contacts will reopen as the suction pressure goes below 17 or 18 lbs., and the desired operation will be obtained. Both the pressure control (No. 2) and the time delay relay contacts must be making contact before No. 2 unit will start. Once No. 2 unit is started, the electric relay (marked A-207 Relay) will maintain the circuit contact and thus keep No. 2 unit in operation until No. 1 unit stops, regardless of whether the No. 2 low pressure control is making contact or not.

To make this operation perfectly clear, let us say that the system has built up 34 lbs. suction pressure. Low pressure control No. 1, therefore, closes and the main unit starts up (unless high pressure cut-out happens to be open due to high head pressure, or some other cause). The main unit continues to pull down the suction pressure in the system. The time delay relay has been energized but has not closed the contacts yet. Suction pressure is going down, 25 lbs.—23 lbs.—20 lbs.

At this point (with the 20 lb. setting on No. 2 L.P.C.) the low pressure control No. 2 closes and makes contact and No. 2 condensing unit is waiting to start. But the suction pressure continues to fall, 19 lbs.—18 lbs. The contacts on low pressure control No. 2 reopen again. There goes the time delay relay. It has closed now, its time setting reached. However the low pressure control No. 2 is open now, so No. 2 unit does not start. The load is evidently light since the main machine was able to pull down the suction pressure very quickly.

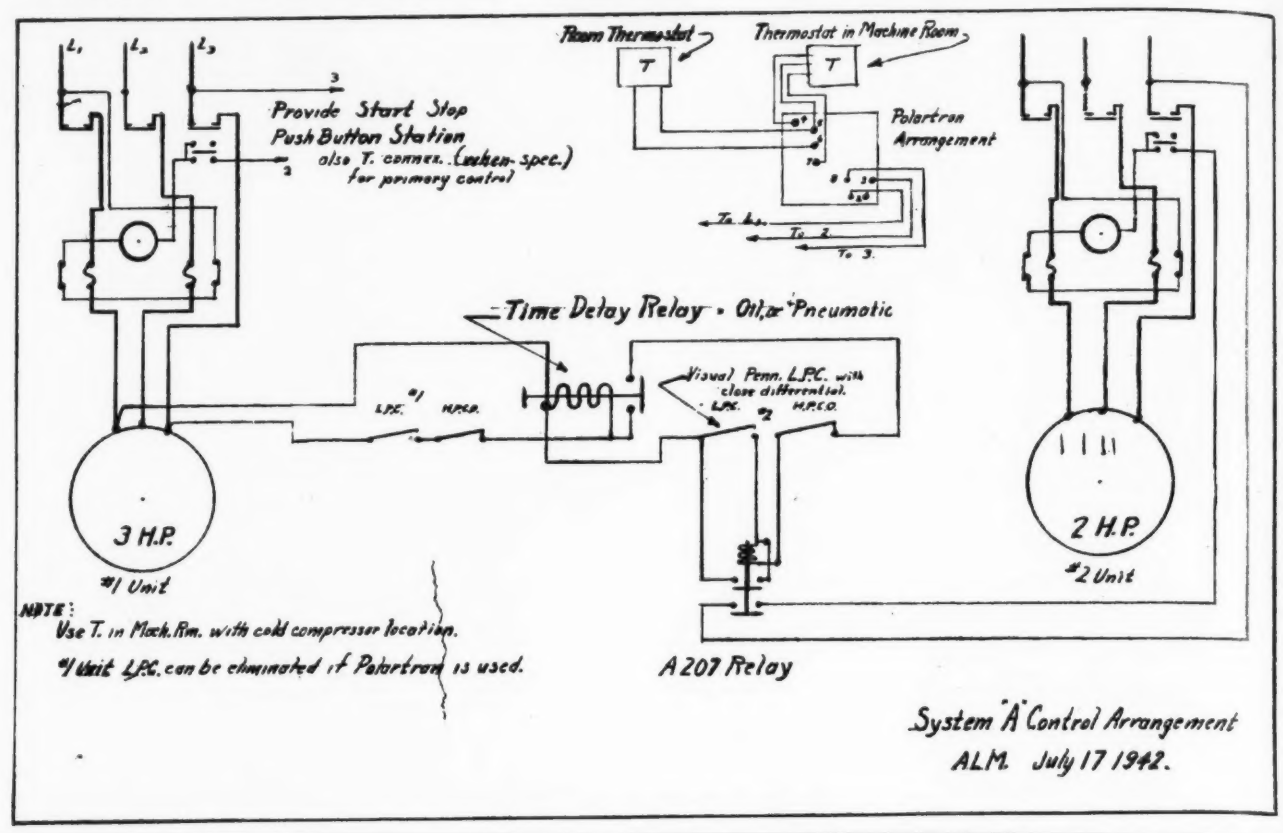
With a heavy load, this would not have been the case. The main machine would not have been able to pull the suction pressure down below the 20 lb. setting in the allotted time allowed by the delaying relay. Therefore the No. 2 low pressure control would be closed when delaying relay closed, and No. 2 unit would start up.

CUT-OUT IMPORTANT

Actually, as you can see, the cut-in point of low pressure control No. 2 is not critical. It is the cut-out point that must be set correctly. If it is set to cut-out at 20 lbs., then the time of the delaying relay may be lengthened or shortened until the desired balance between heavy load and light load is achieved. It is actually much easier than it sounds. Or, the time delay relay may be left with a definite setting, and the low pressure control No. 2 may be varied until the balance is achieved. Either method will provide the same satisfactory results.

Also shown in the diagram are the connections for a room thermostat when used with a Polartron control. The machine room thermostat will be found very desirable and even necessary in some cases where cold machine locations must be used and where the lack of warmth may affect machine operation. This thermostat will cycle the machine when machine room temperature drops.

Diagram of Control Arrangements Where Flexible Capacity Is Desired



★ Soldiers of Bataan — Hong Kong — Singapore — Java! We promise our cooperation in avenging your bloody and heartbreaking defeat!

★ We, in the Refrigeration Industry, promise to protect essential food for the health and vigor of fighters and workers. That's the job we know best. And we'll do it with the equipment WE HAVE NOW — without taking metal materials and MAN POWER so sorely needed for WEAPONS OF WAR.

★ That's our Victory effort as we see it now . . . a responsibility we're proud to accept "for the duration."

REFRIGERATION SERVICE ENGINEERS!

★ Here's a Wartime job you can "sink your teeth into." . . . Keeping present Equipment at peak efficiency WITH A MINIMUM OF REPLACEMENT PARTS AND MATERIALS.

The Nation is counting on YOUR skill and ability to conserve materials for VICTORY.

FOR VICTORY BUY UNITED STATES DEFENSE BONDS STAMPS

AUTOMATIC PRODUCTS COMPANY
2450 NORTH THIRTY — SECOND STREET
MILWAUKEE WISCONSIN
Export Dept. 100 Varick St. New York City

★ AP DEPENDABLE Refrigerant Valves

OPA Denies Rumors Of Wide Rationing, But Book Is Ready

WASHINGTON, D. C. — Rumors that OPA is going to ration certain specific commodities have arisen from that agency's plans to meet future emergencies with adequate ration machinery, says Paul M. O'Leary, deputy administrator in charge of rationing.

"Rumors thus started, are not true," he stated. "A competent discharge of our duties requires that we be ready to meet any emergency as it arises. We launch new rationing programs when the War Production Board finds shortages existing in the supply of the commodity or article affected, and orders us to start rationing. We are the technicians. We're trying to be ready with the right machinery the minute it is needed.

The present advance planning goes in two principal directions.

"One is the working out of a universal rationing book, which, placed in the hands of every citizen of the country, could be used for the rationing of any commodity or article in which a shortage occurred.

"Such a book is being designed experimentally for the OPA now, and proof copies are being prepared at the Government printing office. If it can be made workable, we would have in our hands an instrument that would enable us to start a rationing program almost overnight, instead of having to take six to 10 weeks as in the past when we have had to let the emergencies wait while the books were printed.

"In our present planning, this universal rationing book would contain pages of coupons of various numbers and various colors, so that any commodity or article could be put on a direct coupon ration basis, or so that a whole group of commodities or articles could be lumped into a point-rationing system, so that, for instance three points would buy a handkerchief, and five points, a pair of socks. I use these particular items to illustrate because there is absolutely no thought of rationing them."

One Installation Yields 40,000 lbs. of Scrap

OMAHA, Neb. — The Harding Cream Co., Inc., here, has donated a 22,500-pound set of condenser coils to the scrap metal salvage campaign in Nebraska, along with about 18,000 pounds of additional metal from the plant.

The coils were installed 25 years ago, according to L. P. McCoun, president of the company, and have been of no use during the past eight years except when an occasional spare piece was needed. Other metal salvaged from old machines at the plant included an 800-pound cream cooling vat, approximately half of the weight being made up by copper coils.

New Construction by Utilities & REA Is Halted by WPB

WASHINGTON, D. C.—The halting of new construction by electric utility concerns—principally the Rural Electrification Administration—to save critical war materials, has been announced by WPB.

This action recommended by the War Production Board will not materially affect private utilities which have virtually completed all new construction.

Work on several of the agency's projects in line with the forthcoming order was discontinued by Harry Slattery, chief of REA, but officials said some 24 projects were still underway. Some of these were about half finished while others were nearing completion.

Several weeks ago the War Department asked the WPB to take all the supplies of copper held by "all" utilities, repeatedly mentioning an estimated 400 tons in the hands of the REA, so the material could be used by the armed services.

The board agreed to stoppage of construction but will not make the copper available immediately. It was understood it will tell REA that its remaining copper stocks will have to be held as reserves for repairs.

Westinghouse Appoints Central District Head

DETROIT—William M. Jewell was appointed acting manager of the central district of the Westinghouse Electric Supply Co., Walter Williamson, executive vice president, has announced. Mr. Jewell's headquarters are at 547 Harper avenue, Detroit.

He succeeds James Sedway who has been granted a leave of absence to accept a position in the War Department in Washington for the duration of the war.

Mr. Jewell came to Detroit from San Francisco where he headed the company's branch office for two years. Before that he was manager of the Virginia division for six years, and he served in the Richmond, Va., and Washington, D. C., offices for 10 years.

John Cassidy Appointed Lieutenant in U. S. Navy

RIVERSIDE, Conn. — John D. Cassidy, Kelvinator representative who has spent the past 17 years in refrigeration work, has been commissioned as a Lieutenant Senior Grade, United States Naval Reserve.

York Branch Office Moves

PITTSBURGH—New address of the Pittsburgh branch of the York Ice Machinery Corp., effective Aug. 3, will be the Hostetter building, 7 Ferry St., Pittsburgh, Pa.

Eastern Plumbing and Building Men Organize To Aid Small Contractors

NEW YORK CITY — Organization of the American Contractors War Advisory Committee, composed of recognized authorities in their respective lines, to help speed up war production through plans to be submitted to the War Production Board in Washington at an early date, has recently been accomplished by a group of New York and New Jersey plumbing, heating, and building contractors.

Chairman of the group is P. H. Wolf, chairman of the Association of Plumbing and Heating Contractors of Greater New York. Headquarters have been established at the Waldorf-Astoria hotel.

The principal objects of the new committee are:

"1. To bring about immediate improvement of conditions in the contracting and building field which will give badly needed relief to thousands of small contractors everywhere and thereby greatly increase our lagging war production.

"2. To work out and put into operation an expertly devised redistribution of war contracts (all forms) which will enable small contractors in New York, New Jersey, and elsewhere to continue in business during the war, operating in their own communities where they maintain establishments fully equipped for prompt and economical execution of government orders.

"3. To arrange for a reasonable percentage of the new large contracts to be equitably divided among thoroughly capable small contractors who will accept stipulated salaries in lieu of current top-heavy profits which nearly all large contracting companies are now making in one form or another.

"4. To induce the government to grant subsidies to several hundred Western mine owners which will enable them to reopen their closed mines and supply war production plants with huge consignments of critical metals in a comparatively short time."

Besides Mr. Wolf, officers of the committee are: co-chairman, Norris R. Skaggs, chairman of the Oil Burner Council; treasurer, William Eberhard, chairman of advisory board of the Kings County Master Plumbers' Association; secretary, Arnold Schwartz, publisher of The Master Plumber and Heating Contractor, and public information director, C. J. B. Harris, manager of Harris Feature Syndicate.

Speaking for the committee, Mr. Wolf said:

"Dividing large contracts among so-called small contractors of recognized ability will enable the now hard-pressed little fellows to put their regular staffs and their enormous collective stocks of tools and equipment into immediate action. Believe me, this will speed up war production to an astounding degree and also save the government many millions of dollars in time and money."

An Important Message
TO
USERS AND JOBBERS OF DAVISON'S
SILICA GEL
"MOISTURE'S MASTER"

Within the past several months, ever-increasing quantities of Silica Gel have been required for a multitude of applications related to winning the war. We have increased our production facilities to many times what they were before Pearl Harbor. In spite of this, our Government has found it necessary to place Silica Gel on the list of critical materials.

Your need for Silica Gel has been recognized and after consultation with the authorities involved, we are informed that preference ratings sufficiently high to secure delivery of Silica Gel for your essential needs will now be available upon application through the regular governmental channels. We are further informed that where these needs are vital, even higher preference ratings will be assigned.

It is possible that in some instances, delivery may be delayed. Should this occur—remember—winning the war MUST come first! Every American will gladly accept temporary inconvenience or sacrifice and count it a small price to pay for final Victory.

During these difficult times, you may rest assured that Davison will continue to make every effort to assist the industry in accomplishing its part in the solution of present-day problems.

THE DAVISON CHEMICAL CORPORATION
Silica Gel Department
BALTIMORE, MARYLAND

IF YOU ARE BUILDING INSULATED UNITS...

. . . such as cabinets for testing airplane instruments at one hundred degrees more or less below zero, photographic developing tanks which must be insulated against both heat and cold, sectional refrigerators for food storage in the tropics in which light weight is a transportation "must" . . . you need Dry-Zero Insulation. Here are some of the reasons why:

- **High thermal efficiency**—Dry-Zero Insulation has a "k" factor of 0.24 (as determined by impartial authorities). It is nature's own insulating material made of Tropical-grown Ceiba fibres whose resistance to heat penetration is extremely high. In processing, the heat-stopping efficiency is increased by the patented scientific method of graining which places the fibres across the heat flow.
- **Moisture repellent**—Dry-Zero Insulation is by nature water-repellent (non-hygroscopic) and sheds water like a duck. Ceiba fibre is a United States Navy Specification where utmost water repellence is desired. Properly installed, Dry-Zero Insulation retains its heat-stopping efficiency for the entire life of the unit . . . it will not settle, disintegrate, rot, or absorb odors of any kind.
- **Light weight**—In the bound-batt form, Dry-Zero Insulation weighs only 1½ ounces per board foot, which is 1/7 as much as commercial corkboard. Since Dry-Zero Insulation does not absorb moisture, it will remain as light in weight as the day it was installed, even after years of service. In mobile units of any kind, light weight is a very important feature.
- **Easy to handle, cut, and fit**—Dry-Zero Insulation's long, smooth fibres are soft and fluffy causing no irritation or ill effects to workers' skin. In the new bound-batt form it can be cut to proper sizes with an ordinary kitchen knife, or for volume production it can be cut with a knife-edge band saw. It is stiff enough to handle easily, yet flexible enough to fit irregular contours snugly.

DRY-ZERO INSULATION

DRY-ZERO CORPORATION, 222 North Bank Drive, Chicago, Ill., or 60 East 42nd Street, New York, N. Y.

Air Conditioning & REFRIGERATION NEWS

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Refrigeration Will Help Win the War

The WPB Branch Situation

A SUBSCRIBER who for obvious reasons does not want his name revealed wrote us at length last week, revealing his grief over the untimely passing of Jack Fernald (who was up until his death the Chief of the Air Conditioning and Commercial Refrigeration Branch of the War Production Board). In part, the subscriber wrote:

"I am of the belief that Jack died of a broken heart, superinduced by overwork and lack of recognition of the refrigeration industry by certain 'big shots' on the WPB.

"Jack had been a personal friend of mine for over 16 years. On my last visit with him during the latter part of June, he was thoroughly discouraged and had just about made up his mind to resign. I don't believe that I ever felt so depressed over talking with anyone before as I did after leaving Jack on that day.

"I don't want to go into detail in a letter about conditions in the Refrigeration Branch of this government agency, but would suggest that you get busy and do some checking up on your own hook, through your own sources. It is a damn shame the way this Branch has been stymied by some of the bureaucrats in power."

The above is printed partly to clear away some of the clouds which hung over the name of a grand fellow during the first half of the year. This industry, which had been forced to deal with so many different people and departments that it was dizzy, heaved a sigh of relief with the accession to power of Mr. Fernald. That confusion still reigned was not Jack's fault. He tried. Like several of his associates, he lost his health because of the strain. And he never recovered. Some of his younger associates have also come perilously close to the breaking point.

With those who said that Jack was not a fighter, he was the first to agree. He was a diplomat, a gentleman—one of the finest the industry had. Fighting was not his way, and it broke his heart that the methods of diplomacy he believed in were of so little avail in the turmoil of Washington. How far a fighter might get in that job is a question that nobody can answer until an aggressive man gets a fair chance. One thing about it is certain: in time of war the meek do not inherit the earth.

INDUSTRY SHOULD OFFER MORE HELP TO BRANCH

As it is now constituted, the Branch has some talented men. It also has some whose contributions, present or potential, at the moment seem a bit difficult to discern. The weak are a drag upon the efforts of the strong. When Mr. Fernald's successor is confirmed, the refrigeration industry might well offer him the services of some of its more capable men.

Until one gets inside the government, one has little conception of the dead weight of personnel mediocrity, of protocol, of the red tape, of the divided authority with which a good man has to cope in order to get a job done. And many government servants need their salaries in order to live. Some are not likely to buck the tide for long if they feel that they will lose their jobs in so doing. Those who try to do an honest job—and there are many—must swim against an engulfing sea of indifference, routine, and downright stupidity.

INFORMATION AND EDUCATION ARE REQUIRED BY WPB

The refrigeration industry has been kicked around almost intolerably. Refrigeration has been subjected to more confusion and chaos than the more highly publicized rubber business. It has had to worry with orders which conflict with other orders, with overlapping authority, with undecipherable instructions and restrictions, with uncertainty, uncertainty, uncertainty.

One can blame neither the Branch nor the "big shots." The latter, whoever they may be, need information, education. The former is bogged down by "the system" and by lack of authority.

Responsible industry executives can help alleviate their own muddled situation by seeking audience with the "higher-ups" in the War Production Board, and by contributing to the Branch the services of a few well-informed, "damn-the-torpedoes-let's-go-ahead" type of men for certain jobs.

The time seems to have arrived for the industry to stick its neck out, because it has almost nothing to lose and everything to gain. The Branch needs the industry's help. The industry depends on the Branch. Better coordination is a "must."

LETTERS

CHANGE OF FREEZE ORDER TO ALLOW REFRIGERATION SALES TO DEFENSE WORKERS ASKED

Charleston Electrical Supply Co., Inc.
Charleston, W. Va.

Editor:

We happen to be one of those refrigeration distributors who still have a stock of refrigerators on hand. In fact, we received a carload the Monday after the Saturday on which the freeze order went into effect.

We are willing to make any sacrifice to help win the war, but we sincerely question whether the freeze order on electric refrigerators in distributors stocks is really helping the war effort. Somebody made the statement the other day, that at the present rate electric refrigerators were being sold from the present pool, it would take until 1980 to dispose of all of them.

Some distributors may be located in areas where there are Defense Housing Projects, and Army camps, where electric refrigerators can be sold, but some of us are located where there are no such opportunities but where there is a very distinct demand from defense workers for electric refrigerators and they are not able to obtain them.

In this area, we have chemical plants and coal mines, and during the last two weeks there have been many defense workers in the Naval Ordnance Plant, at South Charleston, in other industrial plants, and in the mines, who have been in to see us trying to find a dealer who had electric refrigerators on hand, because they had moved here to work in one of these plants, did not have an electric refrigerator, and were simply up against it to obtain one.

We have had extremely hot weather; many of these workmen live on the outskirts of town where it is difficult for them to obtain ice supply, and many of them tell me they have not even been able to obtain ice refrigerators. The majority of these workers came here with very little furniture, and many of them have small children in the family where it is definitely necessary to properly preserve milk.

Now, my reason for writing you is just to find out whether you know of any particular action that has been taken by any organization or individual, or any action that could be taken, to bring to the proper authorities in Washington a request for a reconsideration of the present freeze order on electric refrigerators. I have heard it said that this pool has been built up in order to take care of government requirements and requirements of defense workers. It is true that we can sell to the Army, or the Navy, or to certain other governmental units, but it is not possible for an individual to obtain a government order authorizing him to purchase an electric refrigerator, and, frankly, I feel that the morale of these defense workers is an important part of the war program.

Now, from the standpoint of the small distributor, many of them have a pretty good sized investment in electric refrigerators, and I am sure that they are all willing to hold them for the government, if the government intends to use them, but on the other hand it is a hardship to hold an investment of fifteen, twenty, or twenty-five thousand dollars on a definite uncertainty. It is also hard to understand where the present situation is in any way helping the war effort.

The trouble in writing Washington is that, as a rule, your letter never gets to the top of the proper division of the War Production Board, and if the average businessman raises any question about government orders he is accused of being unpatriotic.

JOHN T. MORGAN,
President

ERNEST CONDON REPORTS FROM SOMEWHERE IN AFRICA

With U. S. Engineers
Somewhere in (Censored)

Dear Phil:

This will inform you that I have arrived safe and sound in North Africa, after traveling about six weeks by train, boat, and airplane.

Things over here are pretty good, even to the temperatures, which hit 115° F. some days. Nice temperatures if you can take it.

There is plenty of work to be done. So far the refrigeration end of the job is very well in hand, considering the obstacles we are confronted with in the line of tools and materials. I am thankful that in the shop I have already set up in Africa, that I have a good lathe, drill press, grinder, and a blacksmith outfit, so that we are continuously making our tools and parts.

So far we have not failed to get ANY job working right, but boy, some of the things we had to do to get these jobs going would surprise a lot of the boys back home. The byword over here, when in need of materials not on hand, is "Your in (censored) now, not the U. S. A. MAKE THAT JOB RUN!"

Everybody has done a swell job and it's going to take a hell of a lot to stop this bunch of Americans from finishing the mission we came over to do.

I sure would appreciate reading that good old publication AIR CONDITIONING & REFRIGERATION NEWS, even a few old back numbers would look mighty good to me here in Africa.

Well Phil, when I get back, I am in hopes of being able to relate to the refrigeration industry some of the things we had to solve over here, and the things we used to do the job.

With personal regards to you, and every good wish to all whom I know back home in the refrigeration industry.

ERNEST C. CONDON
(Past Sec'y N. Y. State R.S.E.S.)

SERVICE PROBLEM IN FLORIDA BAD, SHORTAGE OF MECHANICS

1504 LaRue
Jacksonville, Fla.

Editor:

AIR CONDITIONING & REFRIGERATION NEWS has been a wonderful help to me this past year. You have predicted; I have followed. Your predictions filled and I have profited by them.

I unloaded on everything I had the last day of each freeze, except commercial highsides. Highsides are better than money in the bank and one thing that we must have for emergency, therefore I am glad that I had these left.

My men have all left for the service except one. Not one man left to go out for more money. My Certificate of Authority finally arrived. I believe it is going to ease the tension a little for commercial.

Household refrigeration is the problem here now. It is safe to say at least 200 electric refrigerators are using ice in a pan today from talks I have had this morning with three service men. Only the beginning.

We have left in the city of Jacksonville 21 service men to care for 26,000 electric refrigeration units. (I might mention that Mr. Dickie was in Monday of this week and advises me there are 28 men employed as civilian service men at the Naval air base here to care for about 2,000 new refrigeration units. At $59.74 per week, 48 hours.) It is a wonder all of the men haven't left their employ and gone to work there. But the better men have stayed.

We are making every effort to care for the most essential breakdowns, passing up door gasket, hinges, and noisy complaints, for we all realize that 21 men cannot do what 105 men did last year.

Thought you might just like to know a little about the conditions at this point. Thanks again for the wonderful work you have done for the refrigeration men.

J. B. VENTERS

'HONEST AND STRAIGHTFORTH' EDITORIALS IN NEWS

6730 Fifth Ave.
Los Angeles, Calif.

Sirs:

Enclosed you will find $1.00 P. O. money order for which please mail me Text of L-38; Text of P-126, and two price schedules, as advertised in your bulletin edition of July 13, 1942.

In closing allow me to compliment you for your honest and straightforth editorials, they are grand and worth reading and keeping for future guidance.

TOM GAMBLE

PLEASED WITH SERVICE MANUALS

855 West "G" St.
Colton, Calif.

Sirs:

Please send me one copy of Manual No. 1 on Household Refrigeration. I have all the other copies on both Household and Commercial and am well pleased with them.

KERR REFRIGERATION & SERVICE CO.

They'll Do It Every Time . . . . . By Jimmy Hatlo

FALLEN ARCH INN
SWIMMING FISHING
RIDING GOLF
HIKING BOATING
HUNTING DANCING
"THE PERFECT RESORT FOR THE PERFECT REST"
WELL, THERE HE GOES- ALL SET TO BOUNCE INTO THE OFFICE FULL OF PEP. HE SQUEEZED A YEAR'S EXERCISE INTO TWO WEEKS.
I THINK IT WAS THAT 20-MILE HORSE-BACK RIDE YESTERDAY- THAT REALLY POLISHED HIM OFF.
HE BELIEVED IN GETTING HIS MONEY'S WORTH. HE TOOK A CRACK AT EVERYTHING ON THE SIGN OVERTHERE.
IF THAT'S WHAT HE CALLS A VACATION, I'LL SPEND MINE MOVING PIANOS.
OFFICIAL AAA
N ARCH INN
7-11
THE BOSS EXPECTS HIM BACK ON THE JOB FULL OF VIM AND VIGOR
THANX TO BESSIE JANATA, CHICAGO.
JIMMY HATLO
8-10
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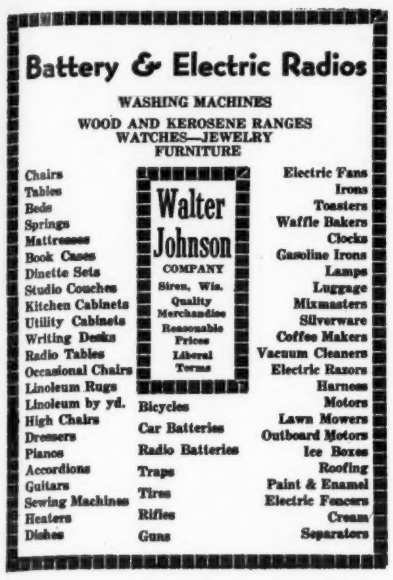
What Dealers Are Doing About Merchandise Shortages

Diversity In Merchandise



Walter Johnson, who operates an appliance store at Siren, Wis., has added a number of really diversified lines. A recent advertisement detailed the various lines he now handles and showed the amazing variety.

'Backyard Vacation' Supplies a New Item

BOSTON—The general movement for "backyard vacations" which use up no gasoline or tire rubber has produced an excellent market for picnic supplies among appliance dealers who are now stocking grilles, barbecue charcoal burners, outdoor furniture, games, etc. Twenty stores have gone into the "vacation supply business" this summer.

Wood Storage Closets Is One of Many New Lines

WASHINGTON, D. C.—The Simon Distributing Corp. has added a complete line of novelty furniture for Washington dealers, as well as storage closets of wood and composition board which will be available at all times.

"Our dealers can take a choice of many items in the future," it was said, "including tire locks, flashlights, small appliances, refrigerator touch up paints, and hardware."

Women Canvassers Ferret Out Used Units

SAN FRANCISCO — Dealer Fred Lipmann of the Lipmann Appliance Co. here has hired four women to scour San Francisco residential neighborhoods to buy used appliances "on the spot" for reconditioning. The women "canvassers" call upon homes of workers moving away after war construction is finished, families with all men in service, etc., and have been averaging from eight to 15 refrigerators a week.

Carolina Dealer Now Is Cleaning Agency

RALEIGH, N. C.—To make the best of situations caused by the war, the Carolina Stoker & Appliance Co. has taken on the agency for a cleaning concern in order to bolster its business volume.

FHA Department Is Dealer's Answer In Defense Housing Area

MONROE, La. — A special FHA department to provide prospective home builders with special services has been opened by United Electric Service, appliance distributor here, following announcement that this section of the country had been designated as a defense housing area.

Under the management of B. A. Heisler the new department offers to handle all details for the prospective builder from the plan drawing stage through to completion of the home.

G. F. Becker, head of the firm, sees in the operation of the department a chance to sustain the operations of his business despite the scarcity of merchandise.

The United Electric Service, through its new department, is not only enabled to assist builders in the actual planning and construction of their home, but certain essential conveniences may also be installed by the firm and included in the loan.

A hot water heater, a central heating plant or a floor furnace, and a Butane gas system may be installed and included in the loan, it was stated.

Denver Dealers Open Servicemen's School

DENVER—A group of 20 major appliance dealers here plan to start a cooperative school for training young boys and draft-exempt older men as mechanics for electrical appliance repair and reconditioning.

The shortage of experienced labor which has closed down several shops incited the plan for the school.

Denver Appliance Co., one firm opening a refrigeration service shop to replace its sales volume, advertised for eight weeks in "help wanted" columns with only a single reply.

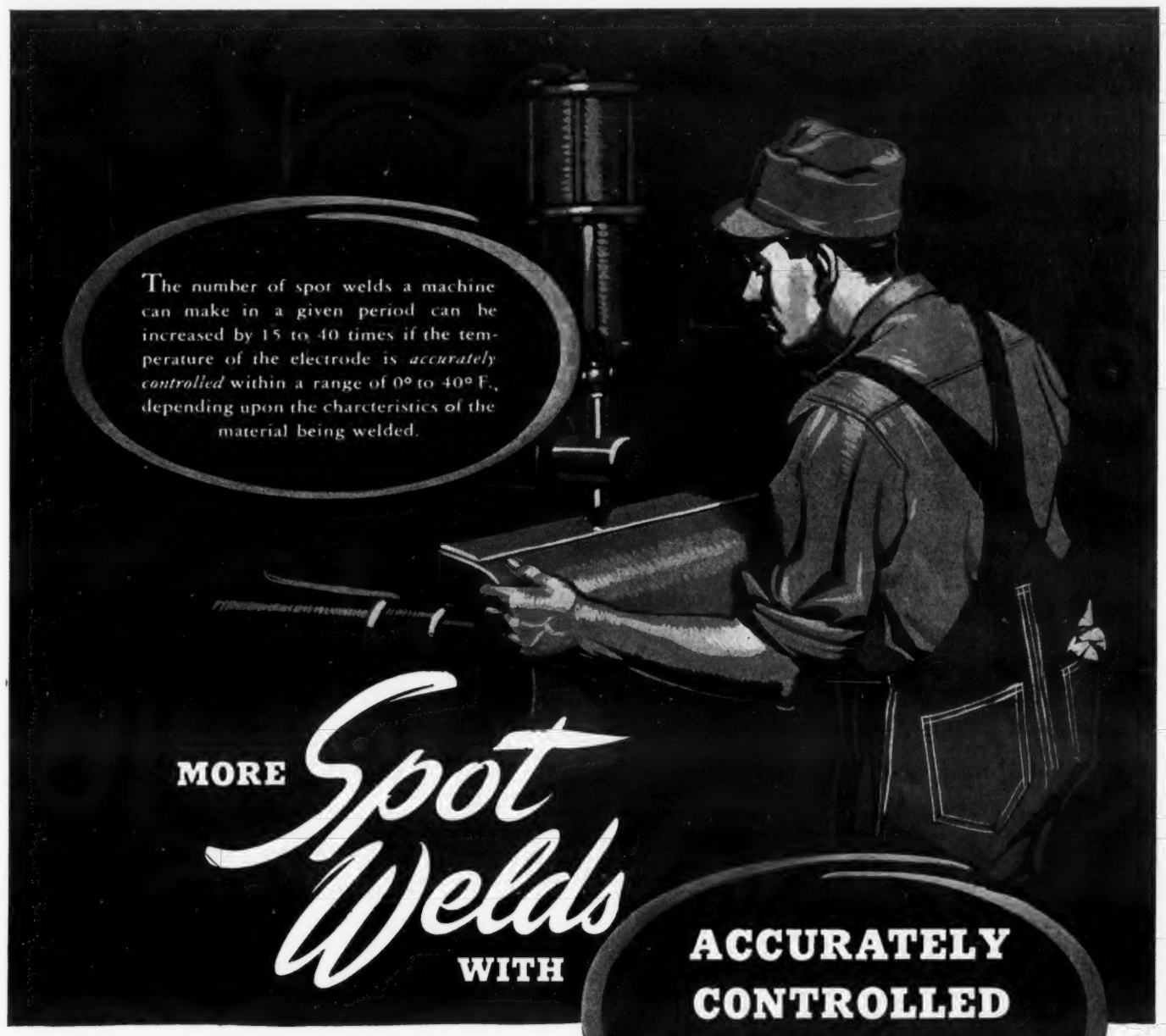
The school will be held in the shops of the various dealers with a few veteran servicemen as teachers. The group will be divided into small units which will study separately refrigerators, washing machines, ranges, ironers, and small appliances —each store contracting to hire one or two of each specializing men.

If necessary, a plan will be worked out whereby servicemen can be 'pooled" and dealers can draw upon each other for necessary help.

East End Glass Co. To Move In Cleveland

CLEVELAND — The East End Glass Co., whose line of merchandise includes electrical appliances, will move Oct. 1 from 962 East 105th St., where it has been located for 25 years, to a building at the southwest corner of East 105th St. and Pasadena Ave., reports Elias Mantel.

Mantel purchased the building at the new location many years ago with the possibility of growth of the electrical appliance business in mind. The structure has basement, main floor and mezzanine, totaling 10,000 square feet as compared to present space of 1,800 feet. It will be remodeled at a cost of $10,000.


The number of spot welds a machine can make in a given period can be increased by 15 to 40 times if the temperature of the electrode is *accurately controlled* within a range of 0° to 40° F., depending upon the charcteristics of the material being welded.
MORE Spot Welds WITH
ACCURATELY CONTROLLED REFRIGERATION
☆ ☆ ☆ ☆ A NEW WAR PRODUCTION MACHINE TOOL FOR
● PORTABLE RIVET COOLERS
● CONDITIONING TOOL AND DIE ROOMS
● COOLANT COOLING ● OPTICAL EQUIPMENT MANUFACTURING ● HEAT TREATMENT ● COOLING ELECTRODES FOR SPOT WELDERS ● MANY OTHER OPERATIONS
ACCURATELY controlled cooling of spot welders is but one of many important ways in which refrigeration can increase war production with existing machinery. To be effective, and to perform its function to the full extent, refrigeration must be accurately controlled. Accurate control is another way of saying Minneapolis-Honeywell... Minneapolis-Honeywell Regulator Co., 2807 4th Ave. S., Minneapolis, Minn.
MINNEAPOLIS-HONEYWELL REFRIGERATION Control SYSTEMS
THE POLARTRON SYSTEM OF FROST-FREE REFRIGERATION

Gas Appliance Group Fosters Plans For 'Layaway' Payments Program

Would Spur Advance Sales of Goods for Post War Delivery

NEW YORK CITY—Final touches are being applied by the National Association of Gas Appliance and Equipment Manufacturers to its plan to spur advance sales of consumer durable goods for delivery after the war, it was disclosed here recently.

Details of the complete program—one of several now coming out—are being withheld until a few hurdles can be leaped. When the new program is approved, it will be introduced nationally through utilities in key cities and promoted through an extensive advertising campaign, being offered to other consumer durable goods groups for their use.

The major aims of the various plans being concocted to induce consumers to earmark certain funds either through the purchase of War-Savings Bonds or otherwise are as follows:

1. To prevent inflation by diverting a substantial portion of national income into War Savings Bonds.
2. To establish a backlog of orders for civilian goods makers when the War is over.
3. To hold selling staffs together.
4. To give consumer durable goods manufacturers a talking point in their advertising campaigns.

Such plans have been offered recently by Rolfe Nugent of the Office of Price Administration, the Advertising Club of New York, and the American Marketing Association.

A great deal of interest has been aroused in the Advertising Club's plan to have War Bonds used for the purchase of durable goods when the War is over, Charles C. Green, managing director, reported last week.

While the Advertising Club's plan is of a general nature, the American Marketing Association, in conjunction with the Magazine Marketing Service and Willard C. Wheeler and Frank J. Zink of the National Federation of Sales Executives, has developed a program in more concrete terms.

It has two principal features. First, it proposes to measure scientifically the surplus buying power by counties and to set county quotas of bond sales by quarters. Second, it proposes to promote the sale of "Victory Merchandise Bonds," bearing a slightly lower interest rate than the regular War Bonds and redeemable as cash for merchandise after the War.

This special type of bond would be turned over for sale to the sales forces of businesses which are now only partially employed in meeting normal demands.

DU PONT
Artic
REG. U.S. PAT. OFF.
For information about nearest source of supply, write to
ELECTROCHEMICALS DEPARTMENT
E. I. DU PONT DE NEMOURS & CO. (INC.)
Wilmington, Delaware
or National Ammonia Division
Frankford P. O. Philadelphia, Pa.
TO ASSURE QUICKER DELIVERIES RETURN EMPTY CYLINDERS PROMPTLY!
There is a shortage of cylinders for refrigerants. If you will return your "Artic" Methyl Chloride containers as soon as empty, your deposits will be repaid immediately—and you will prevent delays in shipments of "Artic" to your shop! Round up any empties you have now and ship them back!
METHYL CHLORIDE
Artic

A User Writes a Sales Story for Home Frozen and Stored Foods

Boyden Sparkes Tells of All the Advantages Of Frozen Foods in Article in Post

EDITOR'S NOTE: When the article by Boyden Sparkes "We Eat What We Want" appeared in a recent issue of *The Saturday Evening Post* members of the refrigeration industry could hardly believe their eyes when they read it—such a swell boost did it give to the idea of home freezing and storage of refrigerated foods.

With the *Post's* permission we are reprinting the article for the benefit of those who might have missed it. It should be helpful to all who are selling refrigeration in any way, shape, or form.

BY BOYDEN SPARKES

(Reprinted by special permission of "The Saturday Evening Post," copyright, 1942, by The Curtis Publishing Co.)

ONE night in April when we had lamb for dinner and war for conversation, it came out that the few chops had cost $1.20—sixty cents a pound. We happen to be one of a sprinkling of families on this continent who are as well able to do something about a food situation as if we were a Swiss Family Robinson. So next morning we went to the grocer who sells us meat.

"What will you charge for a whole lamb?"

"Twenty-five cents a pound."

"How much does a dressed carcass weigh?"

"These run about 40 pounds."

"I'll take three." The total weight was 139 pounds and we paid $34.75. The grocer is a friend and understands how I can afford in good conscience to keep so much lamb at home. He knows I am not a food hoarder, but a food producer, and that I have a big farm freezer. This is a new and developing kind of refrigerator for the home.

Our freezer is shaped somewhat like an old-fashioned farm-cellar icebox of the Northern states, but is of superior construction and marvelously insulated. It is about the size of a counter in a retail store. This cabinet, or chest, in which food is stored at zero or a lower temperature is encased in gray and white porcelain. Along the top are spaced four square lids, each the cover of a storage compartment. The compartment nearest the works is likewise a quick-freeze chamber. There is an ingeniously devised and removable electric fan for that compartment, where the temperature is always 10° lower than in the others. Even at zero, with the fan going, food would freeze faster than at 25° below without the fan. We could actually bring the quick-freeze compartment temperature down to 30° below. We don't, however, because scientific tests have shown that food freezes fast enough for proper results at 10° F. below when the fan is circulating air in there.

The works, including the ½-hp. motor, a compressor, and a coil, are housed as in an ordinary domestic refrigerator. Our freezer's 26 cubic feet of storage space holds between 1,000 and 1,200 pounds of frozen food. Today we are counting on it as essential in a scheme to make our 30 acres on the North Carolina seacoast not only produce food but make it available for ourselves and others until it can be used. In other years we have experienced futility because, in spite of planning, Golden Bantam corn would ripen almost all at once and then be gone until another year, and so with other crops. You can't argue with Nature's growing moods unless you trick her with costly hothouses. But now, thanks to our freezer, each successive abundance will be captured, quick-frozen, and stored away.

Already we see how we can be self-sustaining as to food, except, as children chant, "salt, vinegar, mustard, pepper, sugar, tea, and red-hot pepper." Even salt could be produced. The oldest colored man around told us one time that during The War he boiled sea water for the Confederacy in shallow pans near the great trunk of the water oak that shades our smokehouse. That small structure represents our initial effort to solve for ourselves the food-storage problem that has been asking for solution since prehistoric nomads invented cheese as a means of keeping surplus milk taken from their herds. But no smokehouse can be a store of fresh foods. A freezer is.

In order to be sure of always having one cow fresh, we keep three. Two produce as much as seven or more gallons a day. In the past, when we were away, much of this has been used uneconomically, even fed as whole milk to pigs and chickens. Our cows graze the year around at slight cost, but the wastage was irritating just the same. Now about a third of a gallon of cream goes into the freezer every day in inexpensive vapor and moisture-proof bags, ingeniously made. This fine food is piling up in paper-wrapped bricks. Frozen cream can be kept indefinitely and then be made into butter or ice cream or used in other ways. So nowadays our pigs and chickens get only skimmed milk, and that is sound farming.

(Concluded on Page 11, Column 1)

From his refrigerated treasure chest, the author plucks an entree. Freezers cost from $240 to $750, may pay for themselves in a year.

PHOTOGRAPHS BY HUGH HUMPHREY

A piece of real shoulder meat, cured in Sparkes' own smokehouse. "But no smokehouse can be a store of fresh foods. A freezer is."

We Eat What We Want

By BOYDEN SPARKES

This Post author smacks his lips over out-of-season delicacies put by in his home freezer—an important gadget, he believes, for postwar America.

ONE night in April when we had lamb for dinner and war for conversation, it came out that the few chops had cost $1.20—sixty cents a pound. We happen to be one of a sprinkling of families on this continent who are as well able to do something about a food situation as if we were a Swiss Family Robinson. So next morning we went to the grocer who sells us meat.

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"Twenty-five cents a pound."

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"These run about 40 pounds."

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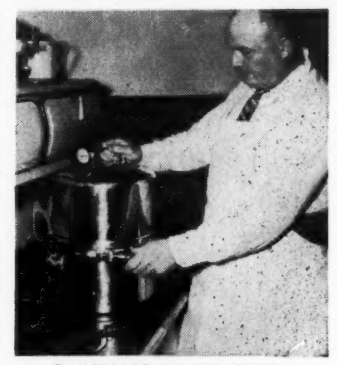
The works, including a half-horsepower motor, a compressor and a coil, are housed as in an ordinary domestic refrigerator. Our freezer's two... six cubic feet of storage space holds be... and 1200 pounds of frozen food... counting on it as essential... thirty acres on the... sustaining as only produ... ant, "salt, vinegar, ... tea and red-hot pepper." ... be produced. The oldest colored man ... told us one time that during The War he ... boiled sea water for the Confederacy in shallow ... of fresh ... always having one cow ... Two produce as much as seven ... a day. In the past, when we were ... ch of this has been used uneconomically, ... fed as whole milk to pigs and chickens. Our cows graze the year around at slight cost, but the wastage was irritating just the same. Now about a third of a gallon of cream goes into the freezer every day in inexpensive vapor-and-moisture-proof paper bags, ingeniously made. This fine food is piling up in paper-wrapped bricks. Frozen cream can be kept indefinitely and then be made into butter or ice cream, or used in other ways. (Continued on Page 53)

These squabs, slaughtered at their tenderest, will be just as good a year from now.



One ticklish job Sparkes always does himself—blanching vegetables for freezing.

The above shows the manner in which the article appeared in a recent issue of "The Saturday Evening Post."

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V-BELTS
FOR ALL LEADING MAKES OF HOUSEHOLD APPLIANCES

● We urge you to give full support to the government's rubber conservation program. V-Belts are Vital to Victory. So, you will want to see that V-Belts are properly installed with pulleys in correct alignment and with proper tension.

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LIFELINES OF POWER VITAL TO VICTORY
THE WORLD'S LARGEST MANUFACTURER OF V-BELTS

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DAYTON, OHIO

DAYTON RUBBER EXPORT CORP.
38 Pearl St., New York, N. Y., U. S. A.

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SERVICE
Front and Center

● Yours is one of the really big jobs of the war, Mr. Refrigeration Service Man—to protect our nation's food supply. And it's necessary to do the job, so far as possible, with the equipment now in service.

That's a big responsibility and, of course, it's not yours alone. It's the task of everyone in the industry. Penn has pledged its full support—you can depend on our complete cooperation in keeping present equipment functioning at top efficiency.

To replace existing controls which cannot be repaired, you can obtain dependable Penn controls under existing priority regulations. *Penn Electric Switch Co., Goshen, Indiana.*

PENN CONTROLS
REFRIGERATION AIR CONDITIONING ENGINE HEATING PUMPING AND AIR COMPRESSOR

User Tells How to Freeze Vegetables & Fruits at Home

(Concluded from Page 10, Column 5)

Chickens to be fried are the right size when they are eight or nine weeks old. Now fryers are being packed away in the freezer fifty or more at a time. We are putting up a year's supply. Heretofore, to eat fried chicken through the summer, we had to raise and feed a big flock, well aware that many would be tough by the time they got to the table, and half their feed, at least, was being wasted. Recently we tested some of the first that had been frozen. An expert on fried chicken, a colored man, said they were better than fresh-killed chicken.

Last year we were unable to eat all the ducks before the crop of young ones had grown too tough to eat, tough enough to raise families of their own to confound us with a further duck abundance. Now it's going to be different. The parent birds can't hatch too many. Each one of these will be tender when eaten. We have been similarly baffled heretofore by turkeys, guineas, and pigeons. But now that we have the freezer the bafflement is ended.

There is a rhythm in Nature's production scheme, and now, for the first time in my life, I can keep in harmony with it through this instrument, the freezer. We shall take a due proportion of each run of fish, likewise garner each garden crop, each fruit harvest. Heretofore, each kind of food wealth has been limited in its fresh state, for most of us, to a brief season of ecstasy: a season for shad, a season for soft-shelled crabs, terrapin and oysters. Starting with marsh hens in September, there are open seasons, where I live, for almost every kind of game, and the game is here—quail, ducks, turkeys, deer, and other creatures. We can eat through a symphony of wild flavors, from rice birds to geese.

The trouble always has been you had too much or none. With a big freezer we can have almost any kind of food we want on any day we want it.

Before going into the freezer, meat in such sizes as you will use for a meal should be closely wrapped in a vapor-and-moisture-proof wrapping, preferably cellophane. The most convenient package material that we have discovered for things other than meat is a special kind of paper bag, designed originally for the commercial producers of frozen foods, but now generally used in locker plants.

There is less need, seemingly, to have vegetable containers vapor and moisture proof, but vegetables must be scalded with steam or hot water before freezing. The bacteria present in all plant life is inactivated by a live steam bath or by treatment with boiling water. The time varies—30 seconds for peas, 4 minutes for broccoli, 2 minutes for snap beans, and 3½ minutes for asparagus—allowance must be made, too, for differences of altitude in mountainous regions.

Supposing any corn or beans or peas were suitable for freezing, I came near making a big mistake with this year's planting. The kitchen garden had been expanded threefold to feed the new freezer. All the seed was bought as usual. And then I learned there are special seeds for sale to those who produce vegetables to be frozen. So I bought a second lot of seed and we also have prepared a new asparagus bed.

On account of their acid juices, most fruits must be packed in vapor-and-moisture-proof containers; here again the manufacturer of paper bags has provided a satisfactory container; it has a special inner shell of lining which can be "heat-sealed" by crimping it with a hot curling iron. Strawberries and peaches, for example, should be packed as nearly as possible without any air; so they are sliced so as to mix their juices with sugar. In this way, their color and flavor can be preserved for a year or more. According to experts, four pounds of berries to one pound of sugar is about right; peaches the same.

Everyone's first reaction to a farm freezer seems the same: "But isn't it awfully expensive?"

The answer is, "It isn't." The maintenance cost is scarcely more, if any, than that of an ordinary domestic electric refrigerator. These boxes have thicker insulation. As far as I can tell from limited experience plus correspondence with veteran freezer owners, a freezer will add to the electric bill between two and five dollars a month.

But how many can afford to buy a freezer? The cheapest one I have heard about costs $239.50. To that is to be added a government tax of 10% and freight charges. The distributors also offer a larger freezer costing $298. This has 17 cubic feet of storage space.

Roughly, the prices of those I considered ranged from $250 to $750. If you get the right freezer and take care to heed simple rules in packing, the appliance may pay for itself quickly. Several who boasted to me that their freezers, in a year of operation, saved what was spent on them aroused incredulity in me last year. But now I'm beginning to believe mine will more than pay for itself within a year. The list price of the box I bought was more than twice as much as the cheapest one on the market.

Home freezers probably are an outgrowth of the locker plants. Most locker companies are operating in converted ice plants equipped to rent cold-storage space in small units. Usually the customer's locker holds 200 pounds or more of frozen food. In many of the plants, storage temperatures are maintained at zero or lower. There are somewhat more than 4,000 locker plants in the United States, and the number is increasing as fast as priorities allow. When it comes to the craftsmanship of selecting and preparing food for quick freezing and storage, the owners of home freezers and the locker patrons are bound in comradeship.

At times I was disposed to challenge my own enthusiasm for home-frozen, home-stored food. But I am ready to go overboard and say that potentially the farm freezer is just as great as the automobile; in fact in conjunction with the automobile it might, at some future day, when the war is over, implement a wholly new kind of life in the United States.

There is a woman in Colorado whose report on four years of experience freezing her family's food is almost more convincing for me than my own adventures. She is Mrs. A. F. Spencer. In a letter she says: "I am a housewife living on the edge of Pueblo on an acre tract that we have built up entirely in 20 years. We have city conveniences, plenty of water. It is quite as well settled as many of the best parts of town. My husband is a letter carrier. We enjoy our home and hobbies and still find time for defense activities."

But this woman is pioneering something. She says: "I have done a good deal of experimental work in leading a freezing club for three years, and last year two of them, one local and one county swap club." That swap club is a scheme so effective that this once semiarid Colorado acre almost feeds a family; indeed, only half the acre does this because the rest is planted in flowers.

The mistress of the acre, Mrs. Spencer, writes: "Most out here specialize, and we ladies in the swap box exchange. But I have cherries, raspberries, grapes, currants, gooseberries, mulberries, strawberries, plums, apples, and all kinds of garden stuff. I freeze about two thousand quarts. I trade grapes for all the peaches and pears I want, and apricots. I trade raspberries and cherries for all the frying chickens I can use, and for eggs to freeze. Whites and yolks are separated and frozen in cartons."

These Colorado wives, all locker patrons, have tried 55 kinds of food, successfully freezing 45; they freeze pies and cakes, even strawberry shortcake made with biscuit dough. Tracking back from this fact, I learned that stale bread, quick frozen, miraculously thaws out fresh.

My family thought I was mad to suggest that we were going to need a second freezer to accomplish our purpose, which is to feed not only ourselves but those who work for us. But now I am armed with a letter from Mrs. W. G. Fyler of West Simsbury, Conn. The Fylers filled their 26-cubic foot freezer before they had packed away half of a summer's produce from their place. Last year they supplemented the freezer by renting four lockers. But this year they did what I now want to do; they bought a second freezer. There are five Fyler children, and they are a hospitable family. They describe their income as modest. Last year they bought their meat in quantity lots, with the exception of a pig. This year they plan to make their own meat—beef, lamb, and pork. They have kept accurate records of costs, and Mrs. Fyler is confident that the savings on meat this year will pay for the second freezer.

There isn't space enough to cite all the interesting freezer experiences I have had or heard about, but one freezer owner, who responded to my letter of inquiry happens to be an industrialist.

"I must say that your enthusiasm," he writes, "matches my own. There isn't the slightest doubt in my mind that this method of handling food will revolutionize the sale and distribution of meats, vegetables, and fruits. After the war is over and metals are again obtainable ——"

Well, the rest of what he had to say may be the answer to some who are asking, "But where am I to get a freezer?" This man says certain companies of which he is the head will purchase at least 10,000 freezers as a starter, when the war is over, and put them into homes of all types, farm and city residences, selling them on favorable terms to get a widespread distribution. That man surely has superior vision; yet what first captured his imagination was the farm freezer's ability to keep him supplied with foods he might find only rarely in the markets.

Clearly beyond any concern for close economy, he appreciates his freezer, not because it has power to supply him with cheaper food, but because it pleases his palate. But he is not blind to its economies and says, "I believe the freezers will come into general use, and mass production will make them cheap enough to go into practically every house."

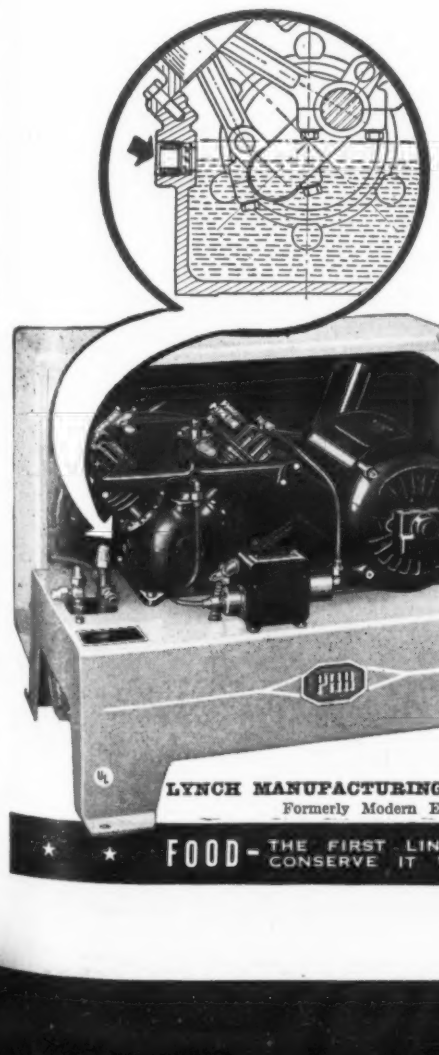
That is what I think, too. I was sure of it from an ecstatic moment immediately after its installation in a once-seldom-used room near the kitchen, when I placed a sea trout in the quick-freeze chamber. It was a kind of ceremony linking the freezer in our house to the sea out front.

. . . When the war is won, I believe the freezer will be recognized as a considerable part of the reality of what most Americans mean when they say "security."

BULLS • EYE OIL GAUGE
On All-Par Models!!!

No squat, no stoop, no kneeling — to check the oil supply in a PAR unit. No, you don't have to tear it apart to check the oil . . . the bullseye sight gauge gives you a constant check on oil level.

And three-ring pistons insure maximum efficiency—less friction . . . lower operating temperatures . . . maximum economy. These are typical features of PAR's thorough-going engineering.



PAR Refrigeration Equipment

See your jobber's display of PAR equipment . . . or write the factory for your copy of the FREE PAR CATALOG "R"—a manual for service engineers!

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★ ★ FOOD - THE FIRST LINE OF DEFENSE . . . CONSERVE IT WITH REFRIGERATION! ★ ★

Service Flashes

"GENUINE DETROIT"

VOLUME 5 DETROIT, MICH.

Published in the Interest of Equipment Conservation through More Effective Servicing

Condenser Obstructed—Strainer Clogged—Loss of Liquid Head

CONDENSER OBSTRUCTED. **On commercial jobs and especially unit systems such as ice cream cabinets, the flow of air over the condenser may be obstructed by merchandise stacked around the cabinet. The condenser should be cleaned occasionally to remove dirt accumulation. In certain localities water-cooled condensers must be periodically cleaned.**

STRAINER CLOGGED. **Causes starved evaporator and low suction pressure. If strainer is at the condensing unit the liquid line will be cold, due to restriction in strainer. This condition also shows up if liquid line is too small or obstructed.**

Detection:

A. Feel liquid line beyond line strainer to make sure it is not being cooled by pre-expansion.

B. Install gauge in liquid line just ahead of valve and observe actual liquid pressure at valve.

C. Check strainer in valve body to make certain that it is clear.

LOSS OF LIQUID HEAD. **When the evaporator is located several floors above the compressor there is a drop in pressure in the liquid line due to the weight of the column of liquid. With Freon, this pressure loss amounts to 10 pounds for each 18 feet of head; with SO_2, 10 pounds for each 17 feet of head; and for Methyl Chloride, 10 pounds for each 26 feet of head.**

On water-cooled machines where head pressure is usually kept low or on air-cooled machines in cold places the loss in head may retard flow of refrigerant to the evaporator. The result will be low suction pressure and possible starving of evaporator.

Detection:

A. Calculate loss in head using known height of evaporators above compressor and figures given above for various refrigerants.

B. Feel liquid line and observe any tendency to become cold as height increases. This condition may also be caused by undersize liquid line.

C. There is likely to be a hissing sound at the expansion valve similar to obstructed liquid line or shortage of charge.

A complete Service Analyzer, giving many helpful hints, will be sent upon request.

SYMPTOMS					PROBABLE CAUSE
Condition of Job	Evaporator Condition	Running Time	Suction Pressure	Suction Line Temperature	
Warm	Warm	Continuous	High	Warm or Normal	Condenser Obstructed
Warm	Warm	Won't Start	Low	Warm	Strainer or liquid line clogged or liquid line too small
Warm or Normal	Starved or Partly Refrig.	Short Cycle	Low	Warm	Loss of liquid head, strainer or liquid line clogged

DETROIT LUBRICATOR COMPANY

General Offices: DETROIT, MICHIGAN

Canadian Representatives: Railway & Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

What to Check When Electric Motor Does Not Start

Motor Troubles & Their Correction

Editor's Note: Following is part of a section on servicing motors, in a series of articles on motor construction and operation.

By R. A. Fuller,
Industrial Engineering Dept.,
General Electric Co.

Complaint - -

H. Noise (Cont.)

5. High Voltage

"High voltage" can cause a noticeable increase in the magnetic noise (hum) of an alternating current motor. This condition may occur more frequently in the outlying districts, on household refrigerators, than in the downtown areas on commercial installations. The advice and assistance of the power company engineers may be very helpful in determining whether or not high voltage conditions exist and in satisfying the customer.

6. Unit Mounting Acts as An Amplifier

"Unit mounting acts as an amplifier," or sounding board, may be the cause occasionally of considerable noise. This difficulty may be encountered with the sheet metal, and light cast, motor compressor bases of belt driven household units and water coolers. As these are quantity production items the manufacturer usually eliminates such noise from the design before the unit is put in production. This trouble is, therefore, rare. If it does occur it can be corrected by adding stiffening to the unit base, putting a brace between the motor and the compressor, or by replacing the motor with one equipped with a resilient base.

The floors and structure of a building may have critical conditions so that an air conditioning condensing unit on an upper floor causes peculair noise and vibration problems. An example of such a condition is a case in which noise and vibration were objectionable only in one part of the building at a considerable distance from the unit. At this particular point, the noise and vibration were evident to a marked degree.

Another case involved an early design of packaged air conditioning equipment used in an executive's office. A peculiar condition of resilience in the floor amplified the noise of the condensing unit and caused extremely irritating vibration only at the location of the executive's chair.

Some type of resilient support for the equipment is the most common corrective measure. The most effective application and selection of resilient supports requires considerable knowledge and experience. If the installation of resilient supports involves hazardous relations with the customer, or if considerable expense is involved, it is strongly recommended that the problem be reviewed with an expert.

7. Faulty Application—Special Quiet Motor Required

"Faulty application—special quiet motor required" may be the result of stiff competition when the sale is made. It is sometimes possible to install resilient supports, or to stiffen the mounting when flexibility is a contributing cause, enough to avoid the necessity of changing to a special quiet motor.

8. V-Belt Squeak

"V-Belt squeak" may occur only in starting or it may be evidenced by a continuous chirping like that of a sparrow. If it occurs only in starting the corrective action is covered in Section K on "Belts Wear Out Quickly." Continuous squeaking of the belt may be eliminated by slight tightening of the belt tension or by rubbing a dry cake of soap over the surfaces of the belt that make contact with the pulleys. These treatments may be ineffective or may only give temporary relief.

More permanent improvement may be obtained by replacing the belt with a new one as the old one will usually be found to have a glaze on the rubbing surfaces. If the new belt has cut rubbing surfaces, instead of the fabric surfaces of the wrapped type of belt, there may be less tendency to slip and squeak especially if the motor pulley diameter is quite small. As the belt glaze may be caused by the belt surfaces picking up metal, as they slip and rub on the sides of the grooves in the motor pulley, it may be beneficial to have the motor pulley grooves electroplated with a hard metal such as cadmium or nickel.

9. Static Electricity

"Static electricity" may infrequently develop when the motor is electrically insulated from the load. An example of this might be a resilient mounted motor in a household refrigerator although usually such motors are made with a wire, or other electrical connection, across the rubber of the supports.

The friction of the belt develops static electricity which discharges periodically by a spark from some part of the frame of the motor. The noise of each spark is a slight "spit." The sparking can be readily eliminated by connecting a wire from the motor frame to the metal parts of the load. Graphite impregnated belts are available. When these are used, the belt itself acts as the electrical connection between the motor and the load to eliminate static.

I. Vibration

(NOTE: Many vibration problems are very similar to noise difficulties. It is recommended that Section H on "Noise" be consulted with particular reference to Section H 6 on "Unit Mounting Acts As An Amplifier.")

1. Fan, or Pulley, on Motor Shaft Not Properly Balanced

"Fan, or pulley, on motor shaft not properly balanced" may be the cause of vibration. This can be checked by operating the motor with the belts removed if it is a belt drive unit. Under this condition vibration is experienced. Then remove any pulleys and fans from the motor shaft and run it again. If the virbation has disappeared, it indicates that there is unbalance in the pulleys or fans that were removed.

The balance can be corrected by removing metal (weight) from the heavy side of the fan or pulley. This can be done by filing or grinding the top of a fan blade or by drilling holes, near the outer edge, in the side of a pulley. The least amount of metal will have to be removed if the point where it is removed is as far as possible from the center of the pulley or fan.

The heavy side of the pulley, or the heavy blade of the fan, can best be determined by mounting it on an arbor and resting each end of the arbor on a horizontal knife edge that is parallel to the other one. With unbalance the heavy side causes the arbor to rotate until that side hangs downward. With proper balance there is no such rotation. If knife edges are not available, placing the arbor between the centers of a lathe for this check may give fair results. Where circumstances do not permit the above procedure, it may be possible to use a cut and try method.

For example, with an unbalanced fan, weight can be added on the blades until the one is found where weight is most effective in reducing the vibration. This can be done by wrapping wire around the blades of the fan. Care should be exercised in fastening the wire tightly so that it will not be thrown off. The fan blade, on which the weight is effective, is the light one. Metal should, therefore, be removed from the opposite blade.

2. Motor Not Supported Adequately

"Motor not supported adequately" may permit the motor to vibrate and require stiffening of the supports under the motor.

3. Motor Not Suitably Balanced

"Motor not suitably balanced" is indicated by objectionable vibration when the motor is running with no load and with all pulleys and fans removed. A sprung shaft may infrequently result from rough handling in shipment. This throws the rotor off center and is further indicated by a non-uniform air gap between the stator and rotor. This can be checked with feelers.

A bent shaft extension can also be caused by rough handling. This can be checked by observing the wobble of the side of the motor pulley or with an indicator on the shaft extension. Unbalance or a bent shaft should be corrected in a qualified motor repair shop. A bent shaft can sometimes be straightened by an expert repair man. Often times a new shaft may be required. In any case the rotor should be checked for good dynamic balance before the motor is returned to service.

4. Improper Resilient Supports

"Improper resilient supports" may do little good in correcting objectionable vibration. In some cases the addition of resilient supports may even aggravate conditions. Some improvement can usually be made by cut and try methods. As covered in Section H-6 on "Unit Mounting Acts As An Amplifier" it is strongly recommended that expert advice be obtained where critical customer relations or considerable expense are involved.

5. Unit Should Have Resilient Supports

(See Section H 6.)

6. Faulty Application—Resilient Mounted Motor Required

(See Section H 7.)

The Machine For Your Next Job...
If it's a refrigeration job ...no matter how big or how small...we can supply Lipman equipment to fit the specifications. Let us work with you.
GENERAL REFRIGERATION DIVISION
Yates-American Machine Co.
Dept. AC-3, Beloit, Wis.
Model 153 Water-cooled Machine
Lipman
GR
AIR CONDITIONING

NOT BY CHOICE
But by necessity and a patriotic privilege of duty . . .
Here at the plant of the Mueller Brass Co. every special skill and facility that we possess has been turned to the one main essential purpose of winning the battle of armament production in supplying those things which Uncle Sam requires of us. THIS IS BOTH A NECESSITY AND A PATRIOTIC PRIVILEGE OF DUTY.
We, as well as all loyal Americans, didn't want war or war business...we wanted to keep our peace time markets—to keep on supplying valves, fittings and accessories for all civilian uses. Owing to our national emergency we are now permitted to produce refrigeration products only for military uses and for very essential civilian requirements.
If you have a problem, see your jobber or write us. We'll do our very best to help.
E
MUELLER
BRASS CO.
PORT HURON, MICH.
WINNERS OF NAVY "E" AWARD

Priorities Information

M-9-c Amendment Believed To Remove Restrictions on Filling Parts Orders

(Concluded from Page 1, Column 5)

received from the Priorities Appeal Board his advice that Amendment No. 5 permits the sale of parts made of copper or copper bearing alloy on priorities lower than A-1-k.

The part of Amendment No. 5 which bears on the subject is the revised paragraph (h) (8) which now reads as follows:

"(8) **Repair.** The restrictions of this order (other than those contained in paragraph (d) (1) hereof) shall not apply to a person repairing a used article on or off the premises of the owner, if the person making the repair does not use copper products or copper base alloy products weighing in the aggregate more than 2 lbs. and any manufacturing, processing, assembling, or finishing done by him is for the purpose of making a specific repair; nor shall the restrictions of this order (other than those contained in paragraph (d) (1) hereof) apply to a person repairing a used article on or off the premises of the owner, if the person making the repair does not use copper products or copper base alloy products weighing in the aggregate more than 1 lb. in excess of the copper or copper base alloy scrap derived from the article being repaired, and all such scrap is delivered to a scrap dealer or to any other person to whom such delivery may be made under the provisions of Supplementary Order M-9-b."

Amendment No. 5 further amends Order M-9-c as follows:

"By amending the line in List 'A' which reads:

"Unions (except seats).

"To be and read as follows:

"Unions and union fittings (except seats, and except for other parts of unions and union fittings where and to the extent that the physical and chemical properties of the liquid or gas passing through the union or union fittings makes the use of any other material dangerous or impractical). See also Order L-42.

"11 By amending the line in List 'A' which reads

"Valves over 2 inch size except seats, discs, and stems).

"To be and read as follows:

"Valves over 2 inch size (except seats, discs, and stems and except for other parts of such valves where and to the extent that the physical and chemical properties of the liquid or gas passing through the valve makes the use of any other material dangerous or impractical)."

It is to be hoped that Amendment No. 5 to M-9-c will clear up a situation which probably more than anything else has served to block the use of ratings set up through emergency order P-126. It has been the contention of parts wholesalers and suppliers and even some WPB officials that manufacturers who were refusing to fill A-10 orders for replacement parts were violating Priorities Regulation No. 1.

But one manufacturer explains the situation as follows:

"Many people were under the illusion that manufacturers wouldn't fill orders on less than an A-1-k because they couldn't replete their inventories on ratings that were less.

"Actually, they were barred from doing so by that provision in M-9-c which states specifically that products could not be made and delivered from inventories on hand before Feb. 28, unless such orders carried an A-1-k, or unless the manufacturer received special permission through the filing of a PD-426.

"Purpose of this provision was to more or less freeze stocks and drive them into the open.

"Where some manufacturers made a mistake was in refusing or turning down an order carrying priorities down to and including A-10. There is a difference between refusing an order, and accepting it but not shipping it."

'Planograph' Method Urged For P-126 Copy

Refrigerating Specialties Co.
714-728 S. Sacramento Blvd.
Chicago, Ill.

Editor:

In your Aug. 10 Bulletin Issue, page 1, under the headline "Supplier Must Give Certified Copy of P-126 Certificate"—a photostatic copy is quite expensive and we see no reason why a planograph copy, also known as lithoprint or photo lithoprint, and other names, is not just as satisfactory.

It is just about the cheapest method of reproduction, and certainly as good as photostat at prices considerably less inasmuch as this method is more or less on a production basis and the prices generally run approximately anywhere from $2.50 for 100 to $4.25 for 1,000 on 20 lb. white sulphide bond, or approximately $3 for 100 or $5.70 on 70 lb. white wove off set.

As it is necessary to furnish the supplier with a properly authenticated copy we believve that everyone should be informed to this effect. We have suggested this method to a considerable number of our accounts and have received planograph copies of the original certificate of authority and they show up as good and in some cases better in other cases than photostats.

CHARLES C. HANSEN, JR.,
Secretary-Treasurer

Mechanics Are Asked To Enlist by Army

(Concluded from Page 1, Column 1)

and an oral trade test by the United States Employment Service.

Air plane mechanic, any kind; appliance service man, oil burner, electric refrigeration, household appliance, office machine, telephone station, armorer or gun smith, automobile mechanic; bench assembler, bicycle repairman, electrician; farm mechanic; instrument maker or repair man; jeweler, locksmith, maintenance mechanic; radio mechanic; radio operator, sheet metal worker; telegrapher, watch or clock maker and repairman.

The Signal Corps particularly needs telephone and telepragh cable splicers, telegraph and telegraphic printer operators, and installer-repair men.

The Ordnance Department wants instrument repair men, Diesel engine mechanics, electricians, opticians, and radial engine mechanics.

Army Expert Predicts Big Material Savings

(Concluded from Page 1, Column 5)

factory as the brass ones." At first "electroplating was considered to solve the problem of rust and corrosion" but as this would involve the use of strategic materials, a special phenol varnish is now used which is also resistant to the chemicals from which gunpowder is made.

In the article Col. Frye also listed the following anticipated savings in strategic metals for the year 1943 as a result of many changes in the specifications of such articles as small arms, gun carriages, shell cases, fuses, etc.—primary aluminum, 170,000,000 lbs.; nickel, 49,000,000 lbs.; tungsten, 17,500,000 lbs.; copper, 671,000,000 lbs.; tin, 12,000,000 lbs.

Brooklyn Company Is Denied Priority Help

WASHINGTON, D. C.—The International Appliance Corp., Brooklyn, is denied all priority assistance for a period of two months, by the terms of a suspension order announced by the Director General for Operations.

Charged against the company is the illegal use of critically needed nickel in plating electric broilers for non-essential purposes.

The violation of priority regulations which resulted in the issuance against International Appliance of Suspension Order S-71 was committed after the company had been specifically advised by War Production Board representatives that such use of nickel was prohibited.

Limitation Order For Space Heaters Issued

(Concluded from Page 1, Column 4)

now in operation can be kept serviceable.

The Plumbing and Heating Branch estimates that manufacturers and dealers have stocks of 200,000 oil heaters and 300,000 gas heaters on hand.

Text of the order is as follows:

Part 3023—Oil and Gas Burning Domestic Space Heaters

§ 3023.1 **General Limitation Order L-173**

—(a) Definitions. For the purposes of this order:

(1) "Domestic space heaters" means any device (except electric) for the direct heating of the space in and adjacent to that in which the device is located, designed for use without heat distribution pipes or ducts as integral parts of such heating devices, and includes but is not limited to circulating heaters, radiant heaters, direct fired gas unit heaters, floor furnaces, and wall furnaces.

(2) "Fuel Oil" means any liquid petroleum classified as grade No. 1, 2, 3, 4, 5, or 6, including Bunker "C" fuel oil, kerosene, range oil, gas oils, and any other liquid petroleum product used for the same purpose as the above designated grades.

(b) **General restrictions.** No person shall produce, fabricate, or assemble any domestic space heaters using fuel oil or gas as fuel, except that subject to the provisions of Supplementary General Limitation Order L-23-c* and other applicable orders, any person may manufacture domestic space heaters using fuel oil or gas as fuel under contracts or orders placed for delivery to, or for the account of, the Army or Navy of the United States, the United States Coast Guard, the United States Maritime Commission, or the War Shipping Administration.

(c) **Replacement parts.** Nothing in this order shall be construed to prohibit or limit the production, by any manufacturer, of replacement parts for domestic space heaters using fuel oil or gas as fuel.

Issued this 5th day of August, 1942.

Auto Parts Order Is Further Liberalized

(Concluded from Page 1, Column 1)

schedule production of replacement parts without regard to purchase orders or contracts placed with them for other material on ratings lower than A-1-a.

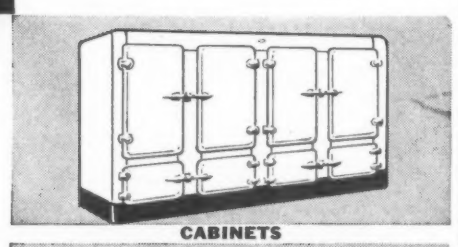
"Amendment No. 1 to Limitation Order L-158 authorizes producers to schedule production of essential replacement parts ahead of all other orders rated lower than A-1-a.

"Another change revises the section of the order which provides that consumers must turn in a used part for every new part purchased.

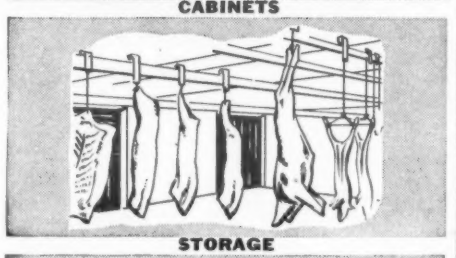
"Under this change, a producer or distributor may sell and deliver any replacement part to a consumer without receiving a used part in exchange, provided that the part involved is not installed in the consumer's vehicle by the producer or distributor from whom it was purchased, and the consumer signs a statement certifying that he will use the new part for replacement purposes only and will, within 30 days after purchasing it, dispose of his used part through regular scrap channels. The use of the certificate does not apply to parts consumed in use or lost or stolen.

"This provision is intended to relieve consumers who are in a position to repair their own vehicles and do not wish to have the vehicles torn down at a repair shop. The amendment also exempts Federal, State, and local governments from the turn-in rule, provided they are borbidden by law from disposing of used equipment."

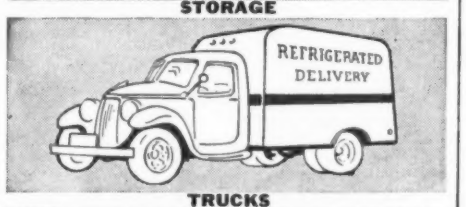
Low temperature insulation for *PRODUCTION LINE ASSEMBLY*



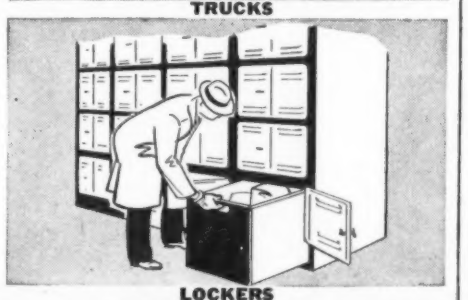
CABINETS



STORAGE



TRUCKS



LOCKERS

GOLD BOND ZERO°CEL

PRODUCTION moves along when you use Gold Bond ZerO°cel. This lightweight, self-supporting, mineral wool batt is easily cut with an ordinary knife to fit irregular spaces, and its toughness and resilience allow it to conform to surfaces and be snapped quickly in place regardless of irregularities or small projections. It isn't brashy—handles easier—and won't settle or deteriorate.

ZerO°cel means lowered production costs—plus an efficient low-temperature insulation that won't absorb odors or moisture, is chemically and physically stable, is fireproof, water-repellent, non-capillary, immune to fungi, bacteria and vermin . . . and has a thermal conductivity of less than 0.26 at 70° F. mean temperature.

Whether you are interested in commercial boxes, trucks, cold storage rooms, or any other type of low-temperature installations, get all the facts on this economical and efficient insulation. Write today for details and specifications. Industrial Sales Division, National Gypsum Company, Buffalo, New York.

NATIONAL GYPSUM COMPANY, BUFFALO, N. Y.

Matthew Maury, Virginian naval officer, called "Pathfinder of the Seas"; he was first to suggets separate ship lanes for East and West bound ocean traffic. He also was first to chart ocean tides, currents and winds, and pioneered in developing the science of hydrography and ocean meteorology.

VIRGINIA—a name that has earned respect

The Virginia Smelting Company is also a pioneer—in the development and perfection of improved refrigerants so vital to the health of our Country in its Victory drive. In war and peace, Virginia Refrigerants contribute to the Nation's welfare.

BUY WAR BONDS & STAMPS

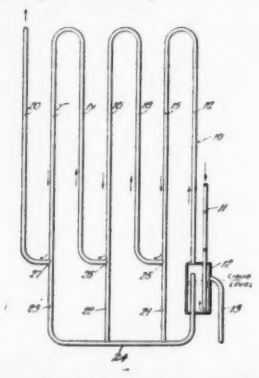
"VIRGINIA" REFRIGERANTS
AGENTS FOR KINETIC'S "FREON-12"
VIRGINIA SMELTING CO.
WEST NORFOLK, VIRGINIA

VIRGINIA

PATENTS

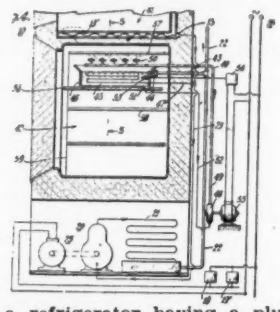
Weeks of July 14 & 21

2,289,442. REFRIGERATION SYSTEM. John Lithgow, Leslie K. Jackson, and Kenneth R. Evans, Cleveland, Ohio, assignors to Sears, Roebuck & Co., Chicago, Ill., a corporation of New York. Application Aug. 15, 1939, Serial No. 290,315. 9 Claims. (Cl. 62—118.)



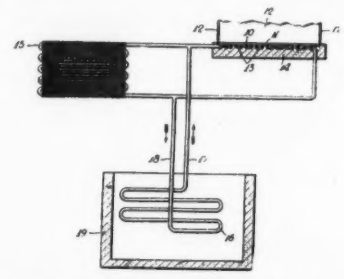
1. A refrigeration system including a generator, a condenser, and a dehydrator disposed in operative relation between said generator and said condenser, the dehydrator comprising a series of originally separate integral tubes connected together, each tube consisting of an up leg and a down leg, each up leg being connected to the down leg of the preceding tube above the lowermost portion of the latter, whereby a continuous unobstructed gas passage is provided, and a liquid return conduit formed by a portion of at least one of said tubes.

2,289,728. REFRIGERATOR WITH HUMIDITY CONTROL. Clyde Malin Rees, White Plains, N. Y., assignor to George A. Rees, White Plains, N. Y. Application April 25, 1939, Serial No. 269,831. 6 Claims. (Cl. 62—3.)



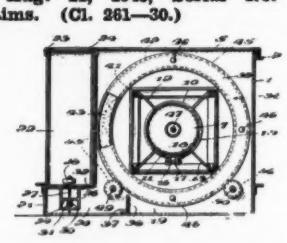
5. In a refrigerator having a plurality of compartments one of which contains air to be refrigerated, the combination with a system common to said compartments for circulating primary refrigerant and including cooling elements one for each of said compartments, of means in said air-containing compartment at a point remote from the side walls thereof in a region of relatively high temperature for holding a body of liquid adapted to be cooled by one of said cooling elements and to cool the air which is freely circulated substantially solely by gravity, baffles for directing gravity circulated air to pass over the body of liquid, means associated with the body of liquid for introducing grains of moisture directly into gravity circulated air and means for controlling the temperature of the body of liquid.

2,289,809. REFRIGERATION. Thomas K. Sherwood, Welleseley, Mass., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application July 30, 1940, Serial No. 348,466. 10 Claims. (Cl. 62—1.)



4. Cooling apparatus comprising a circuit for heat transfer fluid having a plurality of heat rejecting parts and a heat receiving part, one of said heat rejecting parts being constructed and arranged for heat transfer to a cooling fluid flowing in heat exchange relation therewith, and another of said heat rejecting parts having a radiation surface exposed for radiation towards the sky.

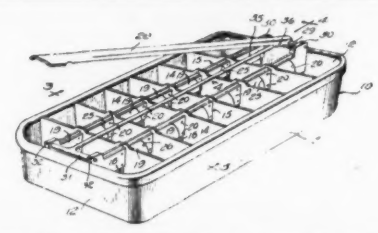
2,289,825. WASHED AIR COOLING SYSTEM. Raymond L. Burton and Walter D. Rogers, Haskell, Tex. Application Aug. 21, 1940, Serial No. 353,570. 4 Claims. (Cl. 261—30.)



2. An apparatus for cooling, purifying, and air conditioning air comprising in combination, an apparatus for freeing a gas from small particles therein suspended, and for moistening said gas including a casing, a water resevoir mounted in the bottom portion of said casing, said casing having a partition wall forming a plurality of water compartments, at least one aperture in said wall, means in the bottom of said reservoir for permitting the exit of water from said reservoir by gravity into one of said water compartments whereby the liquid from said last named compartment gradually finds its way through aperture to the other of said water compartments on the opposite side of said partition, and a rotary driven cylinder mounted in said receptacle and adapted to dip into the water located in said other compartment of said receptacle, a motor, means for driving said cylinder from said motor, and means mounting said motor entirely within said cylinder.

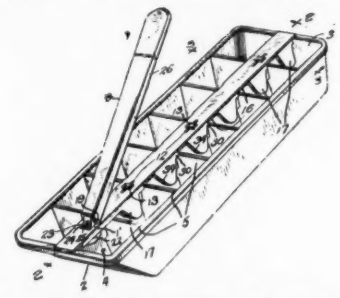
2,289,847. ICE CUBE TRAY. Logan L. Mallard, Norfolk, Va., assignor of one-half to H. Clay Hofheimer II, Norfolk, Va. Application Nov. 9, 1938, Serial No. 239,724. 16 Claims. (Cl. 62—108.5.)

1. A grid for an ice cube tray comprising a plurality of longitudinal grid elements and a plurality of transverse grid



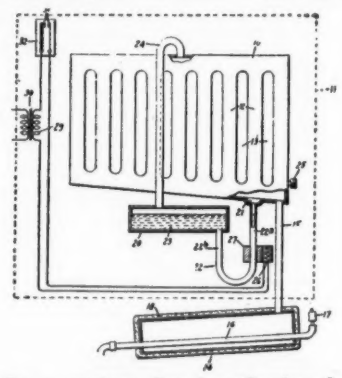
elements, said longitudinal elements being connected and arranged with respect to said transverse elements to partake of limited relative movement toward and away from one another throughout their lengths, each of said longitudinal elements being formed of a plurality of plates connected to one another for relative movement substantially in their own planes, and common means for effecting the latter relative movement of the plates of said longitudinal units.

2,289,848. ICE TRAY. Logan L. Mallard, Norfolk, Va., assignor of one-half to H. Clay Hofheimer, II, Norfolk, Va. Application Nov. 21, 1939, Serial No. 305,552. 10 Claims. (Cl. 62—108.5.)



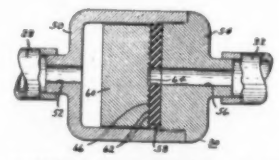
1. In combination with an ice cube tray having ice cubes frozen therein, cube separating means therefor comprising a longitudinal tray partition and transverse tray partitions carried thereby, and tiltable through a small angle about horizontal axes remote from the top of said transverse partitions, means for providing longitudinal tilting movement of said cubes in said tray and the intervening transverse partitions to produce shearing movement between said cubes and partitions, and means for tilting said cubes and said partitions comprising cams frozen into said cubes out of contact with said transverse partitions and movable longitudinally so as to coact with their correlated ice cam surfaces, the bottom surfaces of said cams being substantially normal to said partition.

2,289,879. HEAT TRANSFER SYSTEM. Marcus E. Fiene, Caldwell, N. J., assignor to General Electric Co., a corporation of New York. Application Dec. 20, 1940, Serial No. 371,022. 9 Claims. (Cl. 237—2.)



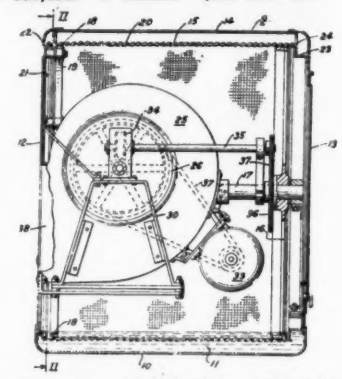
7. In a system for transferring heat from a heat source to a medium the temperature of which is to be controlled by vapor heat transfer means of the type in which heat transfer fluid is circulated in a closed fluid circuit comprising an interconnected vaporizer and condenser by alternate evaporation and condensation of said fluid, a condensate accumulating receptacle, a condensate trap located in the path of condensate returning from said condenser to said vaporizer, said trap being effective to divert heat transfer fluid from said circuit when fluid collected in said trap is withdrawn and effective to add fluid to said circuit when fluid supplied to said trap overflows, a siphon tube having one leg connected to said receptacle and the other leg connected to said trap, venting means interconnecting said receptacle and said circuit for equalizing the vapor pressures therebetween, said receptacle and said tube being located relative to said trap so that fluid flows through said tube in one direction by gravity, means for locally heating the fluid in one of the legs of said tube to cause fluid to flow through said tube in the opposite direction by thermo-siphon action, and means for controlling said heating means to vary the amount of heat transfer fluid in circulation and the rate of heat transfer between said condenser and said vaporizer in accordance with the temperature of said medium.

2,289,905. REFRIGERATING APPARATUS. Don E. Dasher, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application March 9, 1939, Serial No. 260,789. 6 Claims. (Cl. 62—127.)



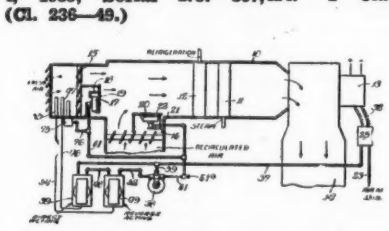
2. A restrictor comprising a member having a yielding elastic surface and a second member, one of said members being provided with a land and a groove in a portion of its surface, said land of said grooved portion being in contact with a portion of the other member to forms a passage between said members, said passage being provided with an inlet and an outlet, one of said members being freely movable away from the other to separate their adjacent surfaces, said movable member being subject to the pressure of the fluid flowing through the groove providing a separating force to separate the adjacent surfaces of the members when the fluid flows in one direction and provided with pressure means acting in an opposite direction to hold the members together with the fluid flows in an opposite direction.

2,289,983. AIR CONDITIONING APPARATUS. Tomlinson I. Moseley, San Francisco, Calif. Original application March 18, 1940, Serial No. 324,552. Divided and this application March 4, 1941, Serial No. 381,653. 1 Claim. (Cl. 261—30.



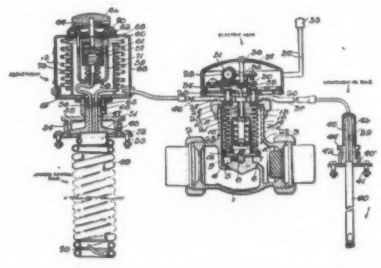
In an air conditioning apparatus a cylindrical housing arranged with its axis horizontally, the cylindrical wall of said housing being perforate, an imperforate pan-like base at the bottom of said housing in communication with the interior thereof to contain a pool of air conditioning liquid, said housing having end walls, a hollow cylindrical drum arranged concentrically within the housing, a spider at one end of the drum, a fixed shaft rigidly supported by the adjacent end of the housing upon which said spider is revolubly mounted, a circular bearing ring at the opposite end of the drum, a plurality of supporting rollers journaled on the adjacent end of the housing which said bearing ring revolubly engages, the cylindrical portion of said drum being fitted with a fluid-absorbent fabric, the diameter of the drum being such that it will project into said pan-like base of the housing, a blower stationarily disposed within the drum, supporting means carried by the housing supporting said blower, driving means within said drum for said blower, the end wall of said drum adjacent said circular bearing ring being formed with an opening registering with the discharge opening of the blower, and a driving connection between the blower driving means and said drum for slowly revolving the latter when the blower is in operation.

2,290,096. CONTROL MEANS FOR AIR CONDITIONING SYSTEMS. Irving Hamilton Dale, Melrose, Mass., and Alvin L. Crump, Evanston, Ill., asignors to The Powers Regulator Co., Chicago, Ill., a corporation of Illinois. Application Dec. 4, 1939, Serial No. 307,424. 1 Claim. (Cl. 236—49.)



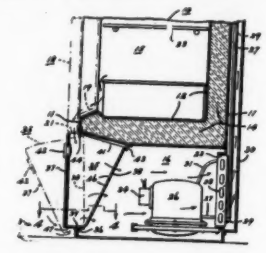
In an air conditioning system, means providing inlets for fresh and recirculated air, a normally closed damper for the fresh air inlet and a normally open damper for the recirculated air inlet, air motors for operating said dampers and an air pipe leading thereto, damper control means including a direct-acting and a reverse acting thermostat in series in said air pipe, both subject to the temperature of incoming fresh air, said direct acting thermostat being set for a temperature below which the fresh air damper is moved to a predetermined partially closed position, and said reverse acting thermostat being set for a temperature above which said fresh air damper is moved to the same position, and a hygrostat in the fresh air inlet operating to permit said fresh air damper to move toward a closed position, regardless of the temperature when the humidity condition of the air exceeds that for which the hygrostat is set.

2,290,153. TEMPERATURE CONTROLLING DEVICE. Norman W, Barnes, Knoxville, Tenn., assignor to The Fulton Sylphon Co., Knoxville, Tenn., a corporation of Delaware. Application June 27, 1939, Serial No. 281,489. 9 Claims. (Cl. 236—91.)



1. A device for automatically maintaining the temperature of medium delivered to an enclosure at either a predetermined maximum or a predetermined minimum temperature comprising a heat exchanger for supplying heat to the medium, controlling means for said heat exchanger, an expansible and contractible motor chamber operatively connected to said controlling means and subjected to heat at said exchanger for vaporizing a vaporizable liquid, means under the control of the temperature in said enclosure and operative only to inject into or withdraw from said motor chamber a predetermined quantity of vaporizable liquid to automatically determine whether said motor chamber shall be in only the one or the other of its two conditions corresponding to the maintenance of maximum or minimum temperatures, and means subjected to the heat of the medium flowing from said heat exchanger for additionally injecting or withdrawing vaporizable liquid into or from said motor chamber for modulating the condition of said motor chamber and the position of said controlling means at either the maximum or the minimum condition of said motor chamber to automatically predetermine the temperature being maintained thereby.

2,290,190. REFRIGERATING APPARATUS. James W. Jacobs, Dayton, Ohio, assignor to General Motors Corp., Dayton, Ohio, a corporation of Delaware. Application Nov. 12, 1940, Serial No. 365,324. 9 Claims. (Cl. 62—89.)



1. A refrigerating apparatus comprising in combination, a cabinet having a plurality of walls forming a food storage chamber therein and a machine compartment below the food chamber, an evaporator of a closed refrigerating system mounted within said cabinet for cooling the food storage chamber, a refrigerant liquefying unit mounted within said machine compartment and connected to said evaporator for circulating a refrigerating fluid therethrough, said food storage chamber being provided with an access opening in the front thereof, a door for normally closing said chamber access opening, the front wall of said machine compartment having an opening therein, a bin-like element movably mounted upon said cabinet and forming a cover for the opening in said machine compartment wall, the front of said bin-like element being located outwardly beyond the front wall of said cabinet, at least that portion of the top of said element located beyond the front wall of said cabinet being open, and said open top portion of said element being substantially closed by a bottom edge of said door when the door is in its closed position and opened when said door is moved into open position to permit cool air from said food chamber

(Concluded on Page 15, Column 1)

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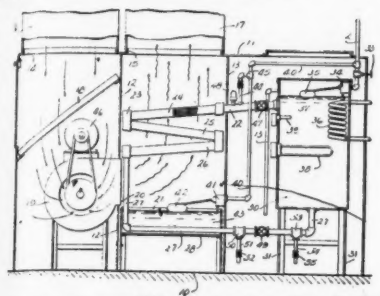
Reach-in CABINETS
Midwest Mfg. Company
GALESBURG, ILLINOIS

Patents (Cont.)

(Concluded from Page 14, Column 5)

to flow into said bin-like element for cooling the contents thereof.

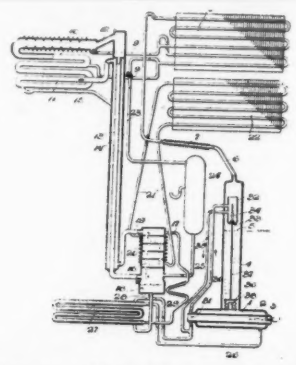
2,290,402. AIR CONDITIONING APPARATUS. Otto Witte, Jr., Brookfield, Wis. Application April 2, 1941, Serial No. 386,409. 2 Claims. (Cl. 219—39.)



1. An air conditioning apparatus including a water heating tank, electrical means for heating the water in said tank, an aquastat immersed in said water for controlling said electrical means, a trisegmental radiator connected with said tank, blower means for forcing air successively through the segments of said radiator, a humidity pan for evaporating water into the air adjacent said blower means, and a heating pipe submerged in the water in said humidity pan and connected with said water heating tank.

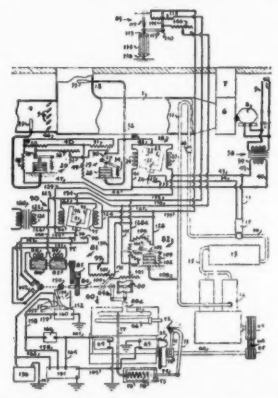
2,290,425. CONTINUOUS ABSORPTION REFRIGERATING SYSTEM. Ernest W. Guernsey, Baltimore, Md., assignor to Consolidated Gas, Electric Light & Power Co. of Baltimore, Baltimore, Md., a corporation of Maryland. Application May 25, 1938, Serial No. 210,064. 10 Claims. (Cl. 62—5.)

1. A refrigerating system of the continuous absorption type comprising means for heating a solution of a refrigerating medium in a liquid to drive off said medium in vapor form, means for circulating said medium through a refrigerating system and reabsorbing the same in said solution and then returning said



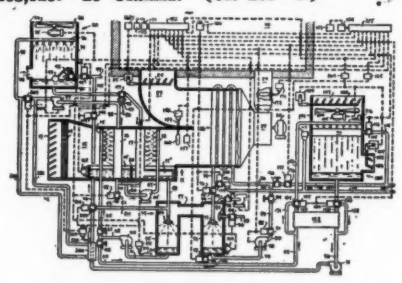
solution to said heating means, and pressure responsive means for controlling the amount of solution returned and subjected to the pressure of the solution in said heating means for maintaining a substantially constant predetermined concentration of said solution discharged therefrom.

2,290,426. AIR CONDITIONING SYSTEM. John E. Haines, Chicago, Ill., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application July 16, 1937, Serial No. 154,027. 17 Claims. (Cl. 62—6.)



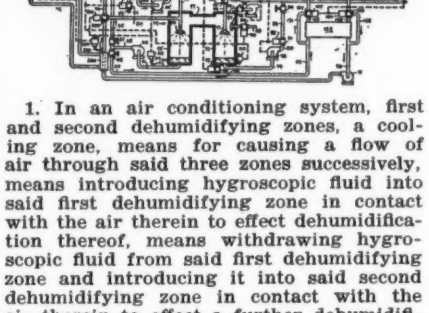
13. In an air conditioning system, in combination, a cooling device through which air is adapted to be passed for a conditioning action, means for supplying cooling fluid to said cooling device comprising a compressor, an internal combustion engine for driving said compressor, a controller for varying the output of said internal combustion engine, motor means for positioning said controller, control means responsive to a condition which is a measure of the temperature of said cooling device for controlling said motor means, and means responsive to the humidity of the air for adjusting said control means for thereby varying the action of said cooling device in accordance with changes in humidity.

2,290,465. AIR CONDITIONING SYSTEM. Robert B. P. Crawford, Miami, Fla. Application April 20, 1939, Serial No. 268,929. 20 Claims. (Cl. 257—3.)



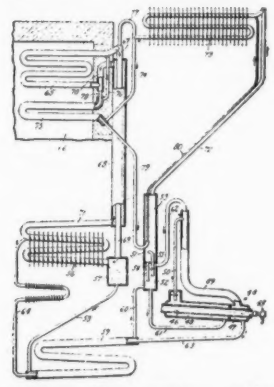
1. In an air conditioning system, first and second dehumidifying zones, a cooling zone, means for causing a flow of air through said three zones successively, means introducing hygroscopic fluid into said first dehumidifying zone in contact with the air therein to effect dehumidification thereof, means withdrawing hygroscopic fluid from said first dehumidifying zone and introducing it into said second dehumidifying zone in contact with the air therein to effect a further dehumidification thereof, an evaporating zone, means conducting water to said evaporating zone, an absorbing zone communicating with said evaporating zone, means conducting hygroscopic fluid from said second dehumidifying zone to said absorbing zone where it absorbs water vapor from said evaporating zone, means conducting water from said evaporating zone to said cooling zone for cooling the air therein, means conducting a portion of the hygroscopic fluid from said absorbing zone and introducing it into said first dehumidifying zone in contact with the air therein, a concentrator for hygroscopic fluid, means for withdrawing the remainder of the hygroscopic fluid from said absorbing zone and conducting it to the concentrator, and means conducting the concentrated hygroscopic fluid from the concentrator and mixing it with the hygroscopic fluid withdrawn from the first dehumidifying zone for delivery to the second dehumidifying zone.

2,290,506. REFRIGERATION. Albert R. Thomas, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Nov. 4, 1938, Serial No. 238,781. 31 Claims. (Cl. 62—119.5.)



29. A refrigeration system for conditioning air and comprising an evaporator arranged for cooling of air to be conditioned, an absorber, said evaporator and absorber being included in both a still-evaporator-absorber circuit and a condenser-evaporator-absorber circuit, said system containing propane and ammonia which evaporate in the presence of each other in said evaporator at a temperature which is directly proportional to the temperature of the condensing portion of said still-evaporator-absorber circuit, and coolers for the heat rejecting parts of said system, the cooler for said condensing portion utilizing evaporation of water in the presence of atmospheric air so that said evaporator will be automatically maintained at a temperature which is directly proportional to the wet bulb temperature of the atmosphere.

2,290,532. REFRIGERATION. Ralph M. Buffington, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a corporation of Delaware. Application Dec. 12, 1938, Serial No. 245,098. 11 Claims. (Cl. 62—119.5.)

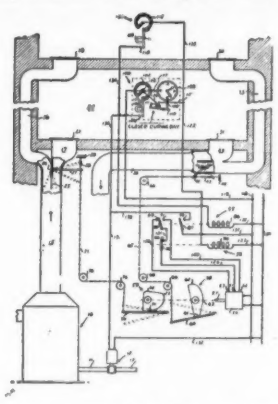


6. A refrigeration system including a condenser, an evaporator, conduits including a liquid heat exchanger forming with said condenser and evaporator a circuit for circulation of a liquid amino-alcohol through and between said condenser and evaporator, means utilizing waste heat from the system for causing continuous circulation of said liquid in said circuit, means for supplying carbon dioxide gas to said condenser, and means for withdrawing carbon dioxide gas from said evaporator.

2,290,647. REFRIGERATED DISPLAY CASE. Floyd C. Lowell, Trenton, N. J., assignor to C. V. Hill & Co., Inc., Trenton, N. J., a corporation of New Jersey. Application Feb. 12, 1941, Serial No. 378,503. 5 Claims. (Cl. 62—89.5.)

1. A refrigerated display case having a display chamber in the upper portion thereof, a storage chamber in the base of the case, means forming a coil chamber adjacent the storage chamber, a refrigerating coil and blower in said coil chamber, supporting means located near the bottom of the display chamber and extending over the coil chamber, means forming air ducts extending from said coil chamber across the lower surface of said supporting means to the display chamber near one end thereof and means located at the other end of said display chamber communicating with the upper portion of the display chamber and with said blower to draw air from the upper portion of the display chamber and cause it to be directed over the coil and into heat exchanging relation with the storage chamber and said supporting means and then to pass longitudinally through the display chamber.

2,290,757. AIR CONDITIONING SYSTEM. Samuel S. Lawler, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Aug. 11, 1938, Serial No. 224,413. 17 Claims.



5. In an air conditioning system for an enclosure having a plurality of zones; air conditioning means; means for conveying the conditioned air to said plurality of zones; means for proportioning the air delivered to said zones; condition responsive means in all of said zones, each normally controlling said air conditioning means; and means to interrupt the control of said air conditioning means by the condition responsive means in all but one of said zones during a predetermined period to change the setting of the condition responsive means in said one zone so as to cause the same to maintain during said period a new value of the condition requiring less operation of the conditioning means, and to cause said proportioning means to increase the proportionate amount of the air delivered to said one zone during said period.

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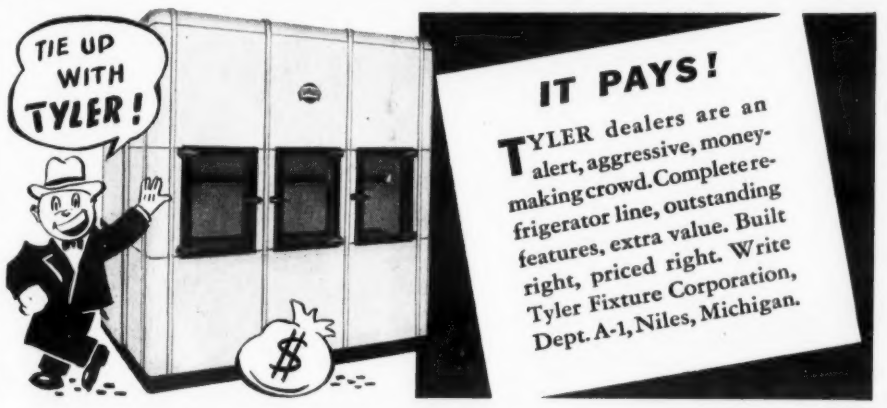
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IT PAYS!
TYLER dealers are an alert, aggressive, money-making crowd. Complete refrigerator line, outstanding features, extra value. Built right, priced right. Write Tyler Fixture Corporation, Dept. A-1, Niles, Michigan.

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ENGINEERED TO YOUR EXPECTATIONS
BUNDY TUBING CO., DETROIT

Salesmen Refused Extra Gas Rations

(Concluded from Page 1, Column 4)

Emphasizing that OPA had considered problems of traveling salesmen for several months and would continue to do so, Joel Dean, chief of the fuel rationing division, declared there was not sufficient gasoline available in the rationed area to allow salesmen more than a "B" ration book in addition to their "A" book.

Under rationing regulations, he explained, traveling salesmen could get as much as 448 gallons of gasoline a year, estimated to be about 45% of the amount they used.

"There isn't enough gasoline for business as usual if we are going to take care of war workers and provide (fuel oil) for heating homes," he continued. "So it seemed to us that it was not asking too much of salesmen to suggest that they double up with other salesmen to cover their territories; that they use the bus and train, and that they make use of the telephone and mail to reach their customers."

The OPA also announced that registration began on Aug. 10 in the seven western New York counties, where gasoline rationing gets under way Aug. 22. The counties are Monroe, Livingston, Orleans, Genesee, Wyoming, Erie, and Niagara.

Navy Man Now

W. H. Long of York's advertising department, and formerly a member of the Air Conditioning & Refrigeration News staff, has recently been commissioned an ensign in the U. S. Navy.

Alco Chairman to Head Finances for Air Training Corps.

NEW YORK CITY—J. Russell Maguire, youthful president of the Auto-Ordnance Corp., and chairman of the board of the Alco Valve Co., manufacturer of refrigeration valves and parts, has been named chairman of the finance committee of the Air Training Corps of America.

Goal of Mr. Maguire's committee is $50,000 for immediate operation of ATCA, a non-profit membership organization engaged in setting up pre-flight aviation training courses in the nation's high schools. This fund will be used until the operation is taken over by the federal government.

The quota will be met by contributions from aviation and related industries and other gifts, according to Mr. Maguire.

Working in conjunction with the United States Office of Education, the Civil Aeronautics Administration, and the Army and Navy Air Forces, ATCA plans to make preflight training available to 2,000,000 young Americans in the nation's 26,000 high schools by 1944.

President of the Russell Maguire Foundation, a charitable institution begun and maintained by himself, ATCA's new finance chairman is a resident of New York City and Greenwich, Conn., and one of the largest manufacturers of small arms in America.

Maguire Demonstrates One of His Products

J. Russell Maguire, president, Auto-Ordnance Corp., chairman, Alco Valve Co., and newly named chairman of the Air Training Corps of America's finance committee, shows Gov. Robert A. Hurley of Connecticut a "Tommy" gun made by his company.

The Auto-Ordnance Corp., Bridgeport, Conn., manufactures the famed Thompson Submachine Gun, better known as the "Tommy" gun. The Alco Valve Co. of St. Louis, besides manufacturing air conditioning and commercial refrigeration parts, also produces hydraulic actuating systems and radio direction finders for use in the War effort.

Mr. Maguire is chairman of the board of the Weber Dental Mfg. Co. of Canton, Ohio; president of the Nickel Co. of Alaska, and president of Sunshine Industries, Inc.

Use of Wiping Solder Is Extended to Sept. 1

WASHINGTON, D. C. — By an amendment to Conservation Order M-43-a, production and use of wiping solder having a tin content of up to 38% may be continued until Sept. 1 for all purposes.

The amendment modifies the terms of the order, which stipulated that wiping solder having a tin content of more than 30% might not be used or manufactured after June 30.

Refrigeration Shows In 5 Cities Have Threefold Purpose

(Concluded from Page 1, Column 1)

Mr. Knighton declared, will have three main purposes.

1. Conservation. The way to "Save, Simplify, and Substitute" in the refrigeration and air conditioning fields.

2. Unification. The enlisting of all the elements in the industry in this conservation drive so that the best possible job for the nation can be done.

3. Essentiality. To show to the industry itself and to all who may be concerned with it that "refrigeration is in the war"— to demonstrate to workers in the refrigeration field that they are fighting the battle for victory, and thus give them faith and encouragement in their labors.

Mr. Knighton is now lining up the "cast" for his September shows, with indications that some of the industry's leading executives who also have reputations as able platform performers will take part.

The director naturally is not revealing all of his plans for the "road show" meetings as he wants to spring the "Refrigeration War Drive" on the audiences in as dramatic a fashion as possible, and he is pointing up the meeting program to these ends.

"Our one big aim," says Chairman Knighton, "is to get the industry together in one big joint effort to do more than it is now doing for the cause of victory.

"We should have the kind of a program that will enable the industry to say, 'we are using less critical materials per unit of manufacture than even the WPB had expected, for we have developed a conservation program that makes it possible for us to do with less."

Furthermore, declared Director Knighton, the "Refrigeration Victory Drive" should demonstrate to those in the industry just how essential refrigeration and air conditioning products are to the War effort—and why efficiency in workmanship is just as important as efficiency in design.

"We want to make every man employed in this industry feel that he is on the firing line in the battle for Victory—and to give him some ideas that will put him on the path to being a better soldier and fighting a better fight," averred the "Victory Program" chief.

Merit awards for individuals who do the best job of putting into effect the principles of the "Refrigeration War Drive" are being planned by the committee. Details concerning the awards will be given later.

Priority Available For Freezer Plant Repairs

WASHINGTON, D. C. — Same preference rating will be assigned to canners and persons engaged in the freezing, dehydration, or fresh packing of fruits and vegetables for material and machinery needed for repair, maintenance, and expansion.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted," 5¢ per word; minimum charge, $2.50. Three consecutive insertions, 12½¢ per word; minimum charge, $6.25.

RATES for all other classifications, 10¢ per word, minimum charge, $5.00 per insertion. Three consecutive insertions, 25¢ per word, minimum charge, $12.50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count.

POSITIONS AVAILABLE

REFRIGERATOR SERVICEMAN: Position available in Northern Ohio for commerical man with low pressure experience. Good salary and car allowance. State qualifications in first letter. Include photograph if available. Box 1405, Air Conditioning & Refrigeration News.

POSITION AVAILABLE for experienced automatic control sales engineer. This is a desirable position for man with good back ground and not subject to the draft. The territory to be covered is in the East and men from there will receive first consideration. Apply Box 1407, Air Conditioning & Refrigeration News.

POSITIONS WANTED

MANUFACTURERS NOTICE: On commission I desire to take on sale of additional line of refrigeration, not conflicting with compressors that I have been handling for past 6½ years in Ohio and western Pennsylvania and vicinity. This is okayed by employer. Some manufacturer who has a line needing representation and service, where now the sales do not justify their own representative sales expense; or call to U. S. Service necessitates changes. My yearly sales and connections very good. Age 54. S. W. HANNA, 14529 Lake Ave., Cleveland, Ohio.

EQUIPMENT FOR SALE

FREEZ-O refrigerant for Frigidaire Meter-Miser units. Perfect replacement for "F114." Send cylinders to THE STANDARD REFRIGERATION CO., McKees Rocks, Pa., for refill. $1.50 per pound in small lots. $1.00 in 100-lb. lots. Iso-Butane at $1.00 per pound in small lots. 65¢ in 100-lb. lots. Mailing address: Box 194-A, Coraopolis, Pa.

FOR SALE: 52 New Crawford electric ranges. 180 AS IS electric refrigerators. In addition we have the following used merchandise: a quantity of compressors, motors, and 40 G-E Monitor Tops. Want to sell at once the complete lot or part of the lot. Reason for selling, going out of the appliance business. Box 1408, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WILL PURCHASE immediately used commercial refrigeration blowers, state condition, make, capacity, quantity, price, also other used commercial refrigeration equipment particularly Servel units. MAJESTIC REFRIGERATOR CORP., 333 West 52nd St., New York, N. Y.

WANTED: used air conditioning, 'Freon' compressors, coils or self-contained. Send full specifications. THE BIMEL CO., 305 Walnut St., Cincinnati, Ohio.

WANTED: Norge refrigerators and washers from dealers who are entering the Service or discontinuing operation. Any size—any quantity. FRANK SCHROEDER, 730 N. St. Mary's St., San Antonio, Tex—F7349.

WATER CIRCULATING coils with 2-inch or larger headers with closely spaced fins, wanted. Advise what you have and price wanted. Box 1409, Air Conditioning & Refrigeration News.

The Bush Mfg. Co. Bulletin

THE BULLETIN WITHOUT THE "BULL"

BREAK IT UP, BOYS, BREAK IT UP. HERE'S A MOB OF ORDERS WAITING TO BE DISPERSED. THIS IS THE SITUATION: THE REFRIGERATING EQUIPMENT WE SELL HAS LITERALLY THOUSANDS OF USES IN WAR PRODUCTION. BUT... THE COMPANIES RIGHT IN YOUR COMMUNITY DOING WAR PRODUCTION DON'T KNOW ABOUT THAT BECAUSE THEY NEVER DID WAR PRODUCTION BEFORE. SO LET'S BREAK IT TO THEM GENTLY... BUT FIRMLY. AND LETS BREAK OUT THOSE ORDERS.

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